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COMPOUNDING RUBBER MILK.

THERE is very much interest just now in the Far East, particularly in Ceylon, over the experiments of Mr. Kelway Bamber in compounding rubber latex. Not a few predict a revolution in rubber manufacture and its removal from the temperate zone, where it now is carried on, to the tropical or sub tropical countries, where rubber is produced.

It is not the writer's wish to appear in the slightest degree to underrate Mr. Bamber's ability nor to ignore the excellent work that he has done in connection with cultivated rubber. He is an intelligent, scholarly, investigator, but he does not understand the rubber manufacture. If the reports of the general scope of his processes are to be believed, he takes Pará milk, adds to it a proportion of sulphur, and, if the goods are to be other than "pure gum", adds also litharge, whiting, lampblack, barytes, zinc oxide, or whatever of the many metallic oxides or earthy materials are called for to produce certain finished goods. This dough he plans to ship to the rubber manufacturer ready for the warmer and the calender or the churn and the spreader.

The advantage claimed is that washing, drying, breaking down, and mixing are accomplished far more easily and cheaply than by the present practice, and therein is a saving in dollars and cents. Just what this saving amounts to per pound is not stated, but it cannot be much. As he is working on Ceylon rubber milk, it is only fair that the basis of comparison should be Ceylon rubber. As it comes to the market to-day, clean and almost dry, a very short time in the dryer—a few hours—makes it ready for the mixer. It is soft in texture at best and needs little breaking down before the compounds are added. Taken as a whole, it is doubtful if the cost of handling up to the calender or spreader is ⅛ of a cent a pound.

Now against this must be put the cost of freight for the compounds to Ceylon, and the same cost back to the consuming countries, plus Mr. Bamber's cost of mixing. If litharge, whiting, and all the rest of their kin were found wild in the island, or were at present in an advanced state of cultivation, it would be a bit better, but only one compounding ingredient is at present indigenous to Ceylon and that is graphite, which certainly cannot be added to tire stocks for example. Further than this, how is any one going to compound for factories that have their own formulas, and that do not and cannot explain them understandingly to a scientist thousands of miles away? The rubber manufacturers would never dare to put stock of another man's compounding into their goods, unless at a vastly decreased first cost, and then only after careful test and analysis of each lot.

Suppose a few tons of Bamber's red antimony stock for high grade valves was started from Ceylon, in the hold of a steamer that traversed the Indian ocean and the Red sea—not to speak of the Mediterranean in sum-

mer? Wouldn't that stock be pretty well vulcanized before it reached the nearest rubber factory?

Suppose further, that Mr. Bamber cabled President Dale of the Rubber Goods Manufacturing Co. (of course in code): "Have just mixed ten tons Rainbow packing stock, formula 40 per cent. Ceylon milk, 60 per cent. Rainbow, 2 cents a pound, f. o. b. New York. Will you purchase?" Wouldn't the price be too high?

There is much more that might be said about the process, but nothing with the light that we have at present upon it that leads to a belief in its commercial value. At the same time it is interesting, and the work that Mr. Bamber has put upon it of distinct scientific value, and for it he should be congratulated.

THE GOODS MADE OF RUBBER.

EVERY now and then a request comes to hand for a general catalogue of goods made of rubber—something which will embrace all manufactured articles into which rubber enters. Such a book no doubt would be very interesting to look through, but its practical value would not be such as to tempt a business man to incur the expense of getting it out. Besides, no matter how complete the list might be in manuscript, it would not be complete by the time the printers were done with it, so rapidly do new applications of rubber come to light. To be of practical value, catalogues of goods must relate to the output of a single factory, or the stocks of a single dealer, or at least to the articles belonging to a certain line of trade.

A complete list of rubber goods would include pencil tips, deep sea cables, balloons, golf balls, garden hose, beer stoppers, hospital sheeting, automobile tires, wagon springs, combs, telephone receivers, and thousands of other things equally different one from another. And it must be considered that a very large use of rubber is in articles in which it plays a subsidiary part. Even a rubber tire is of no use without the wheeled vehicle upon which to apply it. The hose used on railway trains is only a part of the air brake system. And the millions of pounds of rubber packings made every year are valueless except in connection with steam engines and pumps, and when in use the packing is out of sight, where its existence would not be suspected by the uninformed.

The fact is that it is not easy always to tell what are and what are not "rubber goods," even assuming that good rubber is used. Men's suspenders would hardly figure as rubber goods, although every pair worth having contains a certain amount of rubber. No one asks for a catalogue of all the goods made of iron, or into which iron enters. There is no list of paper goods. And for the above and many other reasons, it is not probable that we shall soon see a complete catalogue of rubber goods. It would be easier, no doubt, to compile a list of manufactured articles in which some application of rubber is not involved.

CEYLON'S RUBBER SHOW.

OUR congratulations to the first proposer of the Ceylon Rubber Exhibition! And to everybody who worked in its development, upon the successful outcome. Congratulations to Dr. Willis, of the botanic gardens, and his colleagues; to the enlightened government of the colony, for its part in the work; and to the rubber planters, not only of Ceylon, but of the neighboring States concerned with rubber.

One result of the exhibition will be to promote interest among planters in scientific plantation methods, to the end that better returns and larger profits will be gained. It will lead to a wider interchange among the planters of experiences and views, so that all may share in the common fund of knowledge of rubber culture. We take it that many rubber manufacturers will now feel a deeper interest in plantation rubber, which will tend both to their interest and that of the planters.

One more point is that the holding of the Ceylon exhibition will fix a higher estimation in public opinion upon rubber planting, and lead to the more intelligent consideration of the subject by investors. It is desirable not only that those with capital to invest shall learn of desirable channels, but that they shall be guarded against mistakes, and the event at Peradeniya should have the effect of bringing to a head, as it were, information on many points connected with rubber, and be the means of dispelling the popular ignorance that has prevailed hitherto.

Finally, news of the rubber show must in time reach the powers that be in the Amazon valley, and teach them that the world is not bound for all time to depend upon Pará for its rubber. Then the Brazilian tax collectors might become less rapacious, and the local governments undertake to do something for the benefit of the rubber traffic, thereby helping themselves, besides promoting the consumption of rubber.

SECOND HAND MACHINERY.

IN business, as in other departments of life, "straws show which way the wind blows," which remark we are moved to make by the suggestion which reaches us that the condition of the second hand machinery trade may be taken as indicating the prosperous condition of the rubber industry. Not that anybody has suspected a lack of prosperity in the rubber business; there have been no important failures for a long time; new factories are going up and old ones being enlarged; and the fact that more rubber is being used is a matter of common knowledge. Still, it is pleasant, now and then, to dwell upon the prosperous condition of one's business, and this is why we stop to think over our correspondent's suggestion regarding second hand machinery.

The point is made that the demand for such machinery is, so to speak, crowding the supply; there are more buyers than sellers. There are people who want machines

at once, instead of waiting for the foundry to fill an order, and they look about to see if there isn't something in the second hand line that will answer. Or a beginner, in a small way, as a matter of economy, buys machinery that has been used once, instead of drawing more heavily upon his capital for new outfit. And why not? We have an idea that at the beginning of more than one very important rubber factory in this country—and most of them began on a small scale—use was made of second hand machinery.

The fact that in the expansion of a rubber works a mill or machine is discarded for a larger one or a different pattern doesn't imply that the thing is worn out. Otherwise, the second hand dealers wouldn't be eager to pay cash for it, to sell again. If it be true, then, that second hand rubber machinery is growing scarcer, we are quite ready to regard it as indication of activity and prosperity in the industry.

A FRENCH SUGGESTION.

NUMEROUS industrial papers in France, as for example one entitled *L'Illustration*, are more or less hysterical about the rate at which crude rubber is being consumed. Indeed the journal named says that this year the consumption has far exceeded the production. Just how that could be accomplished doesn't appear, but it makes good reading just the same.

The author of the special rubber article referred to, M. Coustet, believes that he has found three solutions for the rapidly approaching rubber famine. One is the utilization of mineral rubber, another is by treating linseed oil with azotic acid and forming a rubber substitute, and the third is by producing a substitute by treating tar or oil of turpentine with sulphuric acid. Were these suggestions new to the world of rubber they would be very valuable, but the learned author should know that mineral rubber is already largely used, not as a substitute for rubber, but as an assistant, and that its most enthusiastic friends only claim that it helps in certain compounds. The same is true of the long line of oil and other substitutes, which are useful to be sure, but which cannot in any way take the place of crude rubber.

The gentleman should have suggested the only feasible solution, which is the opening of new wild rubber fields and the planting of greater acreages of rubber producing trees that have been proved susceptible of cultivation.

THE FEAR EXPRESSED that the new English invention for making an artificial rubber from grain will work hardship on the poor, through the conversion of their food into the rich man's automobile tires, may, after all, prove unfounded. It would appear equally practicable to turn the rich man's tires into the poor man's breakfast cereal whenever the general food supply becomes inconveniently short. By the way, in the way of rubber produced from grain, everybody has read about the corn rubber that the newspapers claim tires are made of. The English inventor might go further. Why not make red rubber from beets, yellow rubber from mustard, green rubber from spinach, extra strong rubber from onions, and so on? In fact, why not utilize all the vegetables?

WHY DOES THE BRITISH RUBBER TRADE continue to complain about dullness in the waterproofing trade? Suppose the demand for mackintoshes and other garments in this class as formerly sold should fall off. Cannot the manufacturers adapt themselves to new conditions? Automobiling is on the increase in Great Britain as well as elsewhere; probably that country to-day ranks second in respect of the number of motor cars used. Meanwhile the weather conditions in Britain have not changed, and the motorist needs a waterproof coat in nasty weather quite as much as anybody else ever did. Elsewhere the rubber trade appears to be doing a good business in automobile coats. Why is not the same true in England?

SOME OF THE TIRE REPAIR SHOPS which have grown up of late in the larger centers of automobiling are on a larger scale than many early rubber factories that were regarded as very respectable establishments. It is natural that the business of repairing rubber goods should first have been developed in connection with articles so costly as motor tires, but now that such shops have brcome fixed institutions, why should not the repair stations take on the mending of rubber goods generally—rubber boots, hot water bottles, mechanical goods, and so on?

THE MACHINE MADE RUBBER SHOE has not yet revolutionized the trade, but it is making progress. It continues to occupy the attention of inventors, and rubber shoes are actually being turned out on a commercial scale by the use of machinery. Progress in this direction certainly has been as rapid as at the beginning of the substitution of machine work for typesetting by hand, and yet within a score of years the typesetting machines have come into universal use.

PRICES REALIZED FOR PLANTATION RUBBER at the London auctions have not been so well maintained as on native Pará rubber. For example, the highest price realized for plantation rubber during a recent month was 18 cents per pound less than was paid at the same date last year, while the highest price for native Pará was only 10 cents less than in September, 1905. This showing is quite in keeping with predictions made in THE INDIA RUBBER WORLD when the Ceylon plantation product first appeared in the market. The price difference between plantation and other rubber has undoubtedly been a trifle higher than was justified by the intrinsic value of the former, and present figures perhaps more accurately gage its appreciation by manufacturers than did the prices realized at the earlier sales.

THE IMPRESSION IS WIDESPREAD IN THE TRADE that rubber scrap is too high There are those who believe that shoes, for instance, should be had at 4 or 5 cents, instead of in the neighborhood of 10 cents. At the same time, there is no indication that such a decline is near at hand. The situation affords an opportunity for introducing such new gums as Guayule rubber, which manufacturers will hardly fail to take advantage of.

AMERICANS IN CONGO RUBBER.

THE management of the Continental Rubber Co. (New York) have been reticent about giving any information regarding negotiations currently reported for some weeks past to have been pending between American interests affiliated with that company, and the government of the Congo Free State, for the admission of the Americans to a share in the Congo rubber trade. The following statement, which appeared in the New York *Herald* of October 20, 1906, is believed to have been derived from a well informed source:

News received by cable from London yesterday announced the sailing of Thomes F. Ryan by the *Celtic*, of the White Star line, and a successful termination of an important trade agreement with the king of Belgium concerning the Congo. This agreement has been under negotiation for two months, and several distorted stories about it have been printed in this country.

Little is known in America, except among Mr. Ryan's intimate associates, as to the nature of these negotiations, and these men have persistently refused to discuss the subject. One of them yesterday admitted, however, that Mr. Ryan had obtained a firm foothold in the Congo Free State for American enterprise, and on broader lines than had been suggested in any of the brief cable despatches announcing the progress of the negotiations in Brussels. The agreement, he let it be understood, secured, among other things, to Americans the exclusive right to gather rubber over a vast and easily accessible forest area.

This tract conceded to Mr. Ryan and his associates is to be immediately developed on a scale never before attempted in any field. It was said yesterday that the Continental Rubber Co., of which Mr. Ryan is a director, has no corporate connection of any kind with what is known as the Rubber Trust, beyond that the trust, in common with other great users of crude rubber, purchases material from it. The concession assures to the inhabitants of wide and easily accessible areas light and profitable employment under humane American administration.

There is a disinclination on the part of Mr. Ryan's associates to give any definite information as to the concessions he has obtained pending his arrival in this country within ten days.

The American Congo Co. filed articles of incorporation on October 22, 1906, under the laws of New York state, with a capitalization of $510,000. The incorporators were S. Davis, A. F. Gerbe, and W. H. Thompson. At the offices of the Continental Rubber Co. no statement was forthcoming in relation to the new company, which is regarded by many in the trade as having been planned to cover the operations of the American interest in the Congo rubber region.

ACRE DISTRICT RUBBER AFFAIRS.

ONE of the leading rubber traders from the Acre district was chatting recently with the Editor of THE INDIA RUBBER WORLD, and said: "It probably is not appreciated that the rubber gatherers and handlers in our part of South America are waking up more rapidly to the need for improved methods and definite knowledge of our business than are any other gatherers of wild rubber in the world. We have in the past suffered so from the fluctuations of Brazilian exchange that the original owners of rubber concessions have practically passed out of being, the present owners being the active, energetic creditors who are the pioneers and engineers of our country. They have long had their eyes on the Far East, and are already experimenting with coagulating machines and methods that shall do away with the present wasteful and slow smoking process. It is not generally known, but it is through the smoking of the rubber that the laborer gets most of his fever. This happens because he is obliged to sit near an exceedingly hot fire for an hour or more, and at the end of that time, no matter what his employer may say, will plunge into the nearest stream and cool off too rapidly and thus get fever. The rubber handlers of the Acre are also planning to ship their rubber direct through to New York. This will be a definite saving as the export duty on the rubber is only 12 per cent. as against 23 per cent. assessed in Pará or Manáos. Further than this they are at the present time fixing the value of rubber at the beginning of the crop season for the year, so that a man knows exactly what duty he must pay instead of having to depend upon market fluctuation. For this year the duty to be assessed is 3 bolivianos 40 centimes for fine, 2.55 bolivianos for coarse, and 2.10 bolivianos for Caucho. As Bolivian money is very much more stable than Brazilian, it will be seen that the rubber trader is very much better placed than if he were taking his rubber either to Pará or Manáos."

ALUMINUM FLAKE IN RUBBER COMPOUNDS.

A VERY curious natural product, which has been described as "an extraordinary geological occurrence," is what is known as aluminum flake. It is a light powder, absolutely free from grit, with a gravity of 2.58 and contains so large a proportion of aluminum that 48 per cent. of metallic aluminum has been separated from it successfully. It is a remarkable heat resistant and at the same time highly plastic. It is used to-day by a number of rubber manufacturers as a substute for zinc oxide, in whole or in part, in nearly all kinds of work where that is used.

Rubber manufacturers, who have been questioned about its use, claim that in a tire, for example, it gives greater carrying capacity and doesn't chip at all, it is absolutely inert, it lessens the gravity of the rubber, and at the same time toughens and gives it life. Aluminum flake was introduced to the trade by Mr. Frank Reifsnider, of Akron, Ohio, who is a well known and expert rubber manufacturer, and who is to be congratulated on his success in giving a new and valuable compounding ingredient to the trade.

THE Anglo-American Rubber Co., mentioned in THE INDIA RUBBER WORLD last month as having established a depot at 58, Holborn viaduct, London, for the sale of American mechanical rubber goods, are the sole European representatives of the Peerless Rubber Manufacturing Co. (New York). This is also the European depot of Morgan & Wright (Detroit), the New York Belting and Packing Co., Limited, and Hartford Rubber Works Co.

THRELFALL CARR Rubber Syndicate, Limited, has been registered in London, with £5000 capital, to acquire from W. T. Carr provisional protection No. 13,513 (1906) for all the British and foreign rights held by him, and to carry on the business of manufacturing materials used as substitutes for India-rubber and Gutta-percha. This is the patent for utilizing cereals as a material for substitutes, referred to in THE INDIA RUBBER WORLD, October 1, 1906 (page 24).

THE USE OF MAGNESIA WITH RUBBER COMPOUNDS.

By Werner Esch, Ph. D.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The issue of your journal of September 1 mentioned (on page 389) the use of Magnesia with India-rubber compounds, especially taking notice of some recent papers of Dr. Ditmar. I find that a serious mistake has been made by your correspondent, for he speaks of light *carbonate* of Magnesia, while the papers of Dr. Ditmar dealt with heavy *calcined* Magnesia and light *calcined* Magnesia, both of them being in a chemical sense *oxide* of Magnesia. Your correspondent in fact confonnds calcined Magnesia with carbonate of Magnesia. The difference of the contents of pure oxide of Magnesium (Mg O) in both of the technically used Magnesia products is very important, carbonate of Magnesia containing between 40 to 45 per cent. of Mg O, while oxide of Magnesium contains 96 to 98 per cent. Mg O. Only the latter is used as an accelerator of the vulcanization, carbonate of Magnesia only being a filler and having nearly the same effect together with rubber compounds as whiting has.

It is a scareely known fact that Charles Goodyear, the pioneer of the vulcanized rubber industry, already has made use of calcined Magnesia in several of his rubber compounds. The use of calcined Magnesia has been confined for a long time to only a few rubber compounds, but, by the remarkable development of the rubber trade, especially the tire industry, the industry of open steam cured goods, and the manufacture of rubber insulated cables, etc., the use of calcined Magnesia has highly increased. Most of the big rubber factories in Europe and America can not do without this highly appreciated chemical. The vulcanization—*i.e.*, "addition" of sulphur to India-rubber, in chemical meaning—can easily be accelerated by appropriate additions of calcined Magnesia to the compound in question. Such an addition is often inevitable especially together with pitch like or soft rubbers in open steam cured compounds. All rubbers with a high amount of resins, such as Mexican Guayule, Cameroon, Assam, Borneo, etc., usually give better goods, if compounded with appropriate additions of calcined Magnesia; but even the best Bolivian Pará rubber gets a better tenacity, if compounded with calcined Magnesia than without this accelerator of vulcanization.

There exist two kinds of calcined Magnesia: the *heavy* and the *light* calcined. Heavy calcined Magnesia is produced by calcining heavy carbonate of Magnesia, which carbonate is won by precipitation of hot Magnesia solutions by hot solutions of soda. The light calcined Magnesia is produced by calcining the light carbonate of Magnesia, and this light carbonate is the precipitation produet of Magnesia solution together with soda solutions, both carefully cooled. The difference of both kinds of calcined Magnesia concerns only the structure, so that light calcined Magnesia in a dry state seems to have a very big volume, but if the air bladders are driven away and the pores of the material filled by introducing the light Magnesia into liquids, it is easily to be seen that the big volume cannot have the expected effect, if light calcined Magnesia is kneaded together with India-rubber on the mixing rollers.

Only to give the reader an idea of the possibility, that both kinds of the calcined Magnesia have in dry state a very different volume, but do in fact possess quite the same specific gravity (which must be determined under paraffine oil, because water has a chemical action on Magnesia, producing hydrate of Magnesia) it may be pointed out that a ball and a hollow cylinder, which may have quite the same volume and replace both quite the same quantity of oil or other liquids, in a dry accumulation in measuring cylinder tubes will show quite a different "apparent volume".

By the special structure of the light calcined Magnesia 100 grams of this material show a volume of 763 cubic centimeters by dry introduction into a graduated tube for measuring, against 141 cubic centimeters with heavy calcined Magnesia under the same conditions. Then may be introduced into each of the same graduated tubes 100 cubic centimeters of heavy mineral oil, and the tubes may be slowly heated until all air bladders have disappeared: after cooling, the tube containing heavy calcined Magnesia will show 127 to 129 cubic centimeters, and the tube containing light calcined Magnesia 129 to 131 cubic centimeters; that is to say: the specific gravity of both kinds of calcined Magnesia are practically identical. The same conditions take place, if both kinds of calcined Magnesia are mixed with India-rubber.

If one kilogram of heavy calcined Magnesia is introduced into a rubber compound, only 1100 cubic centimeters of air bladders must be driven out, while in introducing one kilogram of light calcined Magnesia into a rubber compound, one has to drive out the high amount of 7300 cubic centimeters. This comparison shows the superiority of heavy calcined Magnesia evidently.

Comparative experiments on the acceleration of the vulcanization by additions of different kinds of Magnesia have thoroughly proved that the heavy calcined Magnesia (special rubber quality Lehmann & Voss brand) has a higher efficiency relating to the acceleration of the vulcanization than any other brand of calcined Magnesia.

Two corresponding compounds with additions of 20 per cent. calcined Magnesia gave the following coefficients of vulcanization: [Coefficient of vulcanization means the amount of chemically combined sulphur which is calculated on 100 parts of pure rubber (free from resins, etc.)]:

Heavy calcined Magnesia, Lipsia brand..... 4.99%
Heavy calcined Magnesia, Lehmann & Voss..... 5.42%

Corresponding compounds with additions of 60 per cent. of calcined Magnesia gave the following coefficients of vulcanization:

Heavy calcined Magnesia, Lipsia brand..... 3.91%
Heavy calcined Magnesia, Lehmann & Voss..... 8.05%

Corresponding compounds of 100 reclaimed rubber, 50 calcined Magnesia, and 3 sulphur, gave the following coefficients of vulcanization:

Heavy calcined Magnesia, Lipsia brand..... 6.91%
Heavy calcined Magnesia, Lehmann & Voss..... 9.37%

Finally, corresponding compounds of 100 reclaimed rubber, 20 calcined Magnesia, and 7 sulphur, gave the following coefficients of vulcanization:

Heavy calcined Magnesia, Lipsia brand..... 5.71%
Light calcined Magnesia, Lipsia brand..... 5.76%
Heavy calcined Magnesia, Lehmann & Voss..... 6.11%

These experiments have been carried out by chemists who

have been commissioned by the Lipsia chemical works. The false conclusions which have been made by several chemists are based on the fact that, owing to the higher vulcanizing efficiency of the heavy calcined Magnesia (L. & V.) many samples have been *overvulcanized*, which can easily be seen by the amount of the coefficients of vulcanization. Under appropriate conditions best results are acquired by the exclusive use of heavy calcined Magnesia. All the compounds above mentioned are only for illustration of the efficiency.

Hamburg, September 15, 1906.

THE EDITOR'S BOOK TABLE.

THE CEYLON HANDBOOK AND DIRECTORY AND COMPENDIUM OF Useful Information for 1906-07. To which is prefixed a Statistical Summary for the Colony and Review of the Planting Enterprise. Up to July, 1906. Compiled and Edited under the Supervision of J. Ferguson, C. M. G., M. L. C. Colombo: A. M. & J. Ferguson. 1906. [Cloth. 12 mo. Pp. XXXVIII+1411. Price, 15 rupees, at Colombo.]

THE forty-eighth annual issue of this standard publication not only maintains its reputation for completeness, accuracy, and up-to-dateness; it goes further, through the addition of new features, and merits a new measure of commendation for the *Ceylon Observer* people, its proprietors. One finds here not only a complete handbook of the island, its government, business, and social institutions, but a directory of estates, with their location, owners and managers, acreage, with what planted, and so on. Originally, of course, this information related chiefly to tea, the planting first developed systematically in Ceylon, but to-day the book is equally complete as to the statistics of rubber, making it a record of value to all who are concerned in any way in Ceylon rubber.

THE CULTIVATION OF *FICUS ELASTICA*, THE INDIA-RUBBER OF the East. By Claud Bald. Calcutta: Thacker, Spink & Co. 1906. [8vo. Pp. V.+32+4 plates Price 2s. 3d. net.]

THE various rubber species under cultivation in Ceylon and the Malay States are regarded by Mr. Bald as less adapted to India than the indigenous *Ficus elastica*, which, by the way, has been planted longer than any other rubber tree. It has not been cultivated anywhere extensively, however, and many problems in relation to it have been solved only partially. The object of the author is to supply a treatise in handy compact form, which shall present such facts from authentic sources as will serve as a guide to those contemplating forming rubber plantations, and at the same time a warning against going into the business without due regard to the conditions—as of soil, rainfall, elevation, and the like—essential to success.

HEAVY RUBBER FOOTWEAR IN RUSSIA.

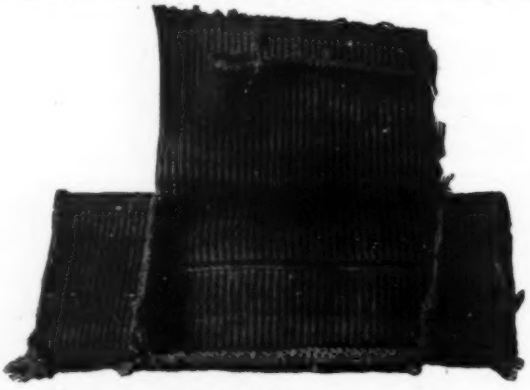
REPORTING on the footwear trade in Russia, the United States consul at Vladivostock, Mr. Roger S. Greene, writes: "A very large quantity of rubber overshoes and artics is used, as practically every man, woman and child who can afford to wears them, as they are indispensable against the winter cold and the muddy spring. Those now sold here are mostly made at St. Petersburg and at Riga. They are of very thick rubber, especially those for winter use, with a lining of wool or cotton. On account of this thickness the rubbers can be slipped or stamped on without using the bands, not such a trivial consideration, when muddy rubbers must continually be taken off or put on. The most common kind is made with a high front that nearly covers the whole of a low shoe.

SMOOTH INTERIORS FOR FIRE HOSE.

THERE is no longer room for argument to prove the advantage of having a smooth interior for rubber lined fire hose. It has long been felt desirable, therefore, that hose should be so woven as to present a minimum of corrugations inside, since the rubber lining tends, in time at least, to adapt itself under pressure to all the irregularities of the hose surface. A recent improvement in the manufacture of fire hose is an attachment to the loom that gives a smooth interior weave. An advantage of this method, apart from the production of a smooth hose, is that the hose is strengthened to an appreciable extent by the filling up of the corrugations with the extra cord. It would seem that this would make a marked difference in the stream from a long line of hose on a high building—a difference not only to the firemen but in the pumping apparatus. This new feature in weaving is utilized in the looms of the Eureka Fire Hose Co. (New York). Two illustrations shown herewith will give a clear idea of the difference between the "old" and the "new" methods.

THE NEW WAY.

The smooth interior weave. This remedies the fault in cotton fire hose of corrugations under pressure. The filling cord also adds strength to the cover.



THE OLD WAY.

The old weave. The rubber lining in this weave, if really elastic, will corrugate under pressure, and as soon as the tube loses its elasticity, it remains corrugated, as in the picture.

THE management of the West Jersey and Seashore railroad have issued an order to the effect that freight hands must wear rubber boots until they are thoroughly familiar with the third rail electric system, the boots serving as a protection from electric shocks.

RUBBER PLANTING IN THE FAR EAST.

RAPID EXTENSION IN CEYLON.

AN idea of the great extension of rubber planting in Ceylon during the past three years may be gained from the following comparison of the acreage in rubber in the principal rubber planting districts, in July, 1906, with the acreage in July, 1903, the figures being compiled from Ferguson's "Ceylon Handbook."

DISTRICTS.	Acres, 1903.	Acres, 1906.	DISTRICTS.	Acres, 1903.	Acres, 1906.
Galagedera.....	50	1,889	Matale East.....	47	2,626
Galle	—	3,947	Matale South....	80	1,690
Kalutara.....2,357		15,493	Matale West.....	90	6 832
Kegalla.....	159	6,232	Monaragala	143	3,497
Kelani Valley...4,100		21,701	Passara.....	31	1,952
Kurunegala	50	3,878	Ratnapura.....	—	7,070

Whereas the rubber planted in these districts three years ago amounted to only 7107 acres, the returns at the middle of this year were 77,807—a ten-fold increase—not counting more than 2,000,000 rubber trees, planted under various conditions and not included in the reports of acreage. The same rate of increase has prevailed throughout the island, for there is now rubber in 46 of the 57 political divisions. Ferguson's total estimate of rubber planted was 11,630 acres three years ago, and 103,766 acres in July this year.

Of this, 68,364 acres are reported as being in rubber alone, 17,802 in rubber planted with tea, and 7852 acres in rubber planted with cacao. The total 103,766 acres is arrived at by adding the rubber reported by number of trees instead of acres, at an average of 175 trees per acre. These figures do not include any planting done by natives. It is estimated by Ferguson that the eventual extent of rubber on Ceylon estates will be 150,000 acres.

The increase in the yield of plantation rubber in Ceylon has been rapid, due to new trees coming into bearing and an increase in the rate of yield. Exports in 1903 amounted to 41,798 pounds. During the twelve months ended June 30, 1906, exports reached 238,647 pounds.

The growing interest in rubber in Ceylon is shown further by the number of large companies formed to acquire rubber estates. Selecting only those indicated by their titles as devoted to rubber, Ferguson's company list shows over 70—a class of companies which did not exist three years ago. Altogether, of the 1583 cultivated estates of all kinds of which Ferguson gives statistics, no fewer than 665 embrace more or less rubber.

LONDON OPINION OF RUBBER PLANTING.

THE *Times of Ceylon's* London correspondent writes to his paper: "The position of rubber shares generally is undergoing a gradual change here in London, and on the whole a healthy one. We hear very little now of the 'produce-it-for-fourpence-and sell-it-for-6*s*. 6*d*.' which was characteristic of the earlier days of the boom. It is now becoming gradually recognized that while the potential profits of rubber planting are far greater than those, *e.g.*, of tea planting, even rubber planting is not going to be exempt from its share of the evils which attend all human things. It is being whispered that there are going to be difficulties with labor, that disease is not a contingency to be entirely lost sight of, and above all that the price is not always going to remain at over 6*s*. Discussing this last point with a produce broker in close touch with the plantation rubber industry, he remarked that in all probability we should never see 6 shillings again; the price, he said, had got to come down, and when it did the uses of the article would increase enormously. He thought there would always be a more or less fixed relation between the price of Pará and of Plantation, but which would be highest in the future he would not undertake to say—everything would depend on whether on further use plantation rubber proved suitable for the general purposes of manufacturers. He thought planters should continue experimenting with smoking and in other ways get their rubber harder."

THE SITUATION IN MALAYA.

MENTION was made in these pages last month of the estimate by Mr. Carruthers, in the government service in the Federated Malay States, of the amount of rubber planting there—about 38,000 acres. It should not be considered that the total acreage there is so much smaller than in Ceylon as comparison with Ferguson's figures would indicate. In the first place, the 38,000 acre estimate is a year old, and much rubber has been planted meanwhile. At the same time, it is probable that some of the Ceylon estimates supplied to Ferguson related to planting in progress at the time that was never carried out. Taking into account the rubber planted in Johore and the Straits Settlements, as well as in the Federated States, *The Times of Ceylon* is disposed to regard the age in all Malaya as large as in Ceylon.

Statistics of yield and export of cultivated rubber in the Federated Malay States are not always available promptly. Official figures now to hand show exports during 1905 as follows:

	Pounds.
From Selangor.....	159,867
From Negri Sembilan.....	45,467
From Perak.....	26,666
Total.....	232,000

The official export figures for Ceylon in 1905 were 168,547 pounds. Since the beginning of this year the exports of cultivated rubber from Malaya have been growing at a more rapid rate than from Ceylon. It may be cause for surprise to some readers to learn that the Straits production exceeds that of Ceylon, but it appears that, while actual planting began first in Ceylon, and afforded a seed supply for the Federated States, the planters of the latter section were the most prompt to go into rubber seriously and on an extensive scale.

PRIZE RUBBER PLANTATION PRODUCTS.

THE rubber department of the third joint annual agri-horticultural show at Singapore, on August 16–18, is reported to have been very interesting. There were many former Ceylon planters present and other well known Straits planters. The show was opened by the governor, Sir John Anderson, K. C. M. G. The rubber exhibits showed an improvement on last year, this being most marked in curing. They were mostly in the form of sheet and crepe, and of the latter there were some very fine samples. A sample of block rubber sent in by Mr. Pears, of Lanadron estate, Johore, which took a prize, attracted much attention.

It was regarded as the best sample of rubber in the show. Rubber was shown by Lowlands, Vallambrosa, Golden Hope, and other estates. Cups were awarded to Highlands and Lowlands estate for Pará sheet and rambong (*Ficus*) rubber; Lanadron estate for Pará biscuits, Pará crepe and Pará rubber packed in boxes; Bertram estate, for Pará scrap. Demonstrations were given by the Federated Engineering Co., of Kuala Lumpur, with their washing machines, in the production of crude rubber. It was expected that the rubber exhibits would be forwarded to the Ceylon rubber exhibition.

At the agri-horticultural show held by the local branch of the Ceylon Agricultural Society, in Kurunegala district, on August 23, some excellent samples of rubber were exhibited, though there were few competitors for the two prizes offered. The gold medal for Pará biscuits was won by A. S. Long Price, of Delwita estate. Mr. Holloway, of Kepitigala, was awarded the prize for scrap rubber, for really excellent exhibits. Among the samples not shown for competition were some Ceará biscuits, brought in by Mr. E. Scott, and which were very favorably commented on.

VACUUM DRYER FOR RUBBER MAKING.

A VACUUM drying chamber mentioned in these pages some time ago as having been placed on the estate of the Bukit Rajah Rubber Co., Limited, in Selangor, for use in the preparation of rubber, is reported to be working satisfactorily. It is of a size to receive 120 pounds of wet rubber at a charge, about 2 hours being required for the drying of sheets or biscuits. Samples of rubber so dried and sent to London were favorably reported on and are said to have fetched the top price. The rubber is of a somewhat lighter color than air dried rubber. More recently three other estates in the Far East have been supplied with vacuum driers for rubber. One of them, the Lanadron Estate, Limited, was awarded a prize for vacuum cured Pará crepe rubber at the recent agri-horticultural show at Singapore.

At Bukit Rajah the rubber sheets are placed upon perforated trays upon shelves in the heating chamber, and an air pump operated by steam is set to work to produce the vacuum. After the steam has driven the pump it passes to the heating shelves of the drying chamber and affects the evaporation. This is an economical method of working, in that it largely does away with the fuel bill for drying.

Assuming the quality of the rubber produced to be all that can be desired, there are two important items of economy in the use of vacuum drying. One is in the labor cost, since a given lot of rubber requires to be handled and cared for only a small part of a day, as against weeks by other methods, and there is the further advantage of being able to market his rubber so much more promptly. The other economical feature is in the great saving of space as against the employment of the typical rubber drying room now in use in the East. A single small dryer such as described above, operated 10 hours, would handle 1200 pounds of wet rubber per day or 7200 pounds per week—an amount of material which would require a great deal of space for spreading out on the shelves of a drying room, where it would require weeks to become ready for market. This feature will become of great importance when, in the near future, the rubber production of the Far East amounts to millions of pounds a year.

FEDERATED MALAY STATES.

A NEW rubber planting company is the Sungei Kapar, with headquarters at 49, Castle street, Edinburgh, formed to acquire Sungei Kapar estate (1338 acres) and Brafferton (1000 acres), in Klang district, Federated Malay States. On the first named property 1100 acres have been planted to Pará rubber, and 200 acres, planted in 1907, it is planned to tap next year. A large amount of planting is now under way. The capital is $110,000 [=$535,315], of which no part is available to the public. Mr. W. W. Bailey is one of the directors.

RUBBER PLANTING MISCELLANY.

A CORRESPONDENT of the *Journal* of the Jamaica Agricultural Society, writing in an unfavorable vein in regard to rubber planting, mentions that near Sinis river, in the department of Bolivar, in Colombia, "there exists a rubber plantation of *Castilloa elastica*, belonging to American capitalists. They have some 300,000 trees, and the plantation is 15 years old. They began tapping in 1901, but it is reported to barely pay the expenses of the place. This, too, in the very district where *Castilloa* grows wild." The editor of the *Journal* comments: "It is a fact that of the many American companies got up to plant rubber in Central America, not a few were simply promoted by stockholders for their own benefit, and have not been successful. But this does not at all indicate that the growing of rubber is not, and will not be, a profitable concern, even if only a few such companies have so far proved paying concerns."

Writing of rubber planting in the Congo Free State, in *The Financier* (London), Arnold H. Malet says that the vines that are being planted under governmental regulations are the *Landolphia Owariensis* and *L. Klainei*. He predicts a good yield when these vines come to be tapped, under European supervision, and that the rubber will be prepared with the aid of machinery, instead of the crude methods now in vogue among the natives.

The well known rubber machinery makers, Messrs. J. Robinson & Co. (Manchester, England), offer for use on rubber estates a two roll washing mill, with rolls 12 inches in diameter by 15 inches long, grooved rolls being supplied for crepe rubber and smooth rolls for sheet. This apparatus does not differ from the washers used in rubber factory work and their introduction in plantation practice is of interest as being along the line of suggestions made by the Editor of THE INDIA RUBBER WORLD while visiting rubber estates in the Far East.

Dr. A. H. Suggett, of Marysville, California, who is interested in an important way in rubber planting in Mexico, sailed from New York during the month for Ceylon, with a view to studying methods of rubber culture there.

At a recent sale of government lands in Kalutara a number of lots aggregating 780 acres were sold to five purchasers, for rubber planting, at an aggregate of 79,600 rupees [=$25,824.89 gold], or an average of $33.10 per acre.

The administration report for Kalutara district, Ceylon, for 1905, states that the output of plantation rubber during that year was 45½ tons [=101,920 pounds], and that 88,667 trees were in bearing at the end of the year. This would give an average of about 1⅛ pounds per tree.

Payment has been made on preference shares of the Malacca Rubber Plantations, Limited, at the rate of 7½ per cent. per annum for the half year ended June 30, 1906.

THE SOURCES OF THE LATEX OF RUBBER.

IN a lecture before a number of rubber planters at Ratnapura, Ceylon, Mr. Herbert Wright, of the government experiment station at Peradeniy discussed at length the construction and formation of the channels from which latex—the rubber liquid—is obtained from the trees.

The lecturer exhibited, under the microscope, sections of *Hevea* seedlings, to illustrate "where the rubber comes from." In these could be seen the embryonic parts of the giant rubber trees, and the origin of the latex (milk) tubes traced out. There could be seen a mass of minute and more or less regular boxes or cells in the bark, the material from which the future latex tubes arise; running frequently throughout that beautiful network were long irregular strands of deeply stained tissues connected here and there with cross-bands to form a contorted ladder like structure—that is the laticiferous system—a system only in so far that it is irregularly connected at various points, and composed of latex cells or tubes in all their stages. In a well grown tree, by the way, the latex tubes run more or less vertically up and down the stem.

With the growth of the plant, the latex tubes arise and become filled with the globules of the different substances which ultimately give the rubber of commerce. Here and there can be seen the breaking down of cells and the production of a single tube by the disappearance of partition walls. This decomposition, essential for the production of latex tubes in the *Hevea*, continues throughout the life of the tree. What seem normal and regular cells in the bark to day may begin to show perforations to-morrow, and within a few weeks a system of milk tubes may arise in an area which, had it been tapped too early, would never have yielded a drop of rubber.

Essential points to be considered are (1) that the latex tubes arise by the perforation and decomposition of ordinary cells of the bark; (2) that the processes involved require an interval of time for their completion; and (3) that in tapping operations a series of channels are dealt with which have no very vital association with other parts of the bark. As for the latter point, it is ridiculous to compare the laticiferous system of the rubber trees with the circulatory system of human beings. The lecturer would rather compare the importance of latex to the plant with human hair, which can be regularly removed, and as regularly reappears. Hence no matter how much latex is removed, the tree continues to flourish, provided the tapping is done with proper care.

The bark of a growing tree is formed from within outwards; new cells are continually being formed which push the older ones outward. All these cells, at some time or other, are liable to undergo decomposition and to assist in the production of latex tubes. And the material now constituting part of the dead dry bark of untapped rubber trees was originally part of the inner bark and probably contained latex.

It is not in the extraction of latex that harm is done to trees so much as in the removal of the bark containing that substance. The bark, or cortical tissue, which is removed in tapping does contain organized systems of elements which are of vital importance to the tree. If removed too quickly the life of the tree is endangered. If all the cortical tissue is removed—that is, if the bark from all sides of the tree—is removed oftener than once in three or four years, the result is likely to be fatal.

During ordinary tapping operations the cortical cells are cut into while in a living condition, and removed at a time when they contain food intended for the use of the plant. The sooner it is realized that the bark is really the "mother of rubber," the better it will be for all concerned, since its removal means a reduction in subsequent yields. Hence the importance of not tapping too frequently.

It might be supposed that if the latex were not extracted it would become more concentrated, and more rubber would be contained in a given volume of latex. But in the case of some *Hevea* trees at Heneratgoda tapped for the first time at the age of 30 years, the first tappings, which drew out what might have been considered the concentrated caoutchouc emulsion of many years, gave rubber of inferior quality. The same feature has been observed in rubber from younger trees when tapped for the first time, and whatever the cause, the results do not encourage one to leave mature trees alone for too long an interval, with the idea of getting a higher quality of latex at a subsequent date. Mr. Wright was inclined to think that if the latex could be extracted by some method that would not destroy the cambium or the bark (cortex), the tree could be drained almost dry of latex without being affected injuriously.

The amount of yield does not always correspond to the number of tappings. The trees in one area tapped daily for a certain period—for 264 times—gave an average of 9 pounds of dry rubber each, while similar trees tapped 131 times, on alternate days, gave an average of 11 pounds. In the first case, all the original bark had been removed, and in the latter only half the original bark. There is ground for believing that, when incision of the latex tubes is made more perfect than at present, the interval between tapping operations may, with advantage, become still longer and yet be accompanied with a further increase in yield and saving of labor.

The lecturer did not discuss the various methods of tapping applied to *Hevea* in Ceylon, but felt that fuller series of results than are now available would, in view of the present knowledge of the origin and construction of latex tubes, enable many important questions to be answered satisfactorily. Summing up, he said: "The latex tubes and their contents require an interval of time to form or accumulate; if they are tapped too frequently they are less turgid and the yield therefrom is reduced; if the bark is removed too quickly, either by too frequent or too extensive tapping, the material whereby latex tubes might have subsequently developed is completely severed. If you leave the bark on the tree for a certain interval, probably more latex tubes will be formed and the yield per unit of excised bark increased."

EGYPT.—A United States consular report says: "Rubber tires are in constant demand because the blazing Egyptian sun soon wears them out. The importations of automobiles and motorcycles in 1905 were valued at $176,000."

THE BRISTOL RECORDING GAGE.

IN many manufacturing industries there are processes of drying, vulcanizing, cooking, and so on, which play an important part in the result or quality of articles produced; in few, however, is the matter of temperature of such vital importance as in the rubber manufacture.

The Bristol Co. (Waterbury, Connecticut), are pioneers in America in the manufacture of recording thermometers for recording temperature at a distance from the heated bulb. The instrument first designed for the purpose was applied to recording temperature of heat in a vulcanizer for rubber boots and shoes.

The illustration shows the interior or working parts of the recorder, which is essentially the well known Bristol recording gage, which enjoys a world wide reputation owing to its simple design and elimination of levers, gears, pinions, or multiplying mechanism of any description.

The principle on which the thermometer operates is as follows: The bulb is partly filled with a volatile liquid which, when heated, condenses in the small capillary tubing which connects the bulb and recorder, through which pressure is transmitted to the pressure tube in the recorder. This pressure is a definite quantity depending on the temperature of the bulb. Consequently the temperature of the connecting tube or of the pressure tube in the instrument does not affect the accuracy of the record. In other words temperature is not transmitted, but simply pressure, equivalent to the temperature.

In the use of recording thermometers, the superintendent or foreman has an indisputable written record of the temperature at which the goods were cured. If there is anything about the goods which is not just right he knows where to look for the difficulty, instead of spending a night or two at the heater to be sure that the heat has been exactly as reported. The use of recording thermometers eliminates guess work, and reduces the process of vulcanizing to a science.

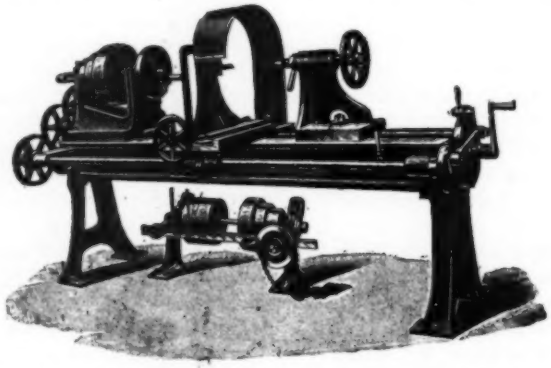
The value of the recording thermometers applies equally well to the vulcanizing of rubber cloth and similar material, also in steam vulcanizers employed in the manufacture of mechanical rubber goods. For use in the latter a special form of bulb, lead covered to protect it from acids, is employed. The recorder itself may be placed at a distance from the position of the bulb. The regular length of connecting tube supplied is 25 feet, but this may be made longer.

The recording thermometers are also suited for drying rooms for crude rubber, and around the power plant for recording the temperature of feed water, flue gases, superheated steam, etc.

AUTOMATIC TAPE CUTTING MACHINE.

THE machine here illustrated has been designed for cutting India-rubber tapes for golf balls, and elastic washers, and also for cutting other materials of a similar nature to rubber. The illustration shows a machine complete with countershaft ready for fixing. The material to be cut is wrapped upon a mandril fixed between the centers of the fast and loose headstock, and is only limited in length of sheet to be cut by the diameter that the rest will permit when coiled on the mandril.

The operation of the machine is as follows: The mandril is first put into the machine with the rubber wound upon it. The set collars on the automatic stop arrangement are adjusted so as to stop the tool at the end of the mandril, and the machine is put into operation by a countershaft. The small clutch on the cam shaft is put into gear by a small handle at the right of the machine. When the tool advances to the set depth of cut, being pressed forward by the cam, it then immediately springs back out of contact with the rubber, and the rest with the tool travels forward



along the bed through the action of the crank and hutching motion at the right hand of the machine. As soon as the set amount of travel is completed, the hutching pawl recedes due to the action of the crank, and while this is taking place, the cutter again advances and withdraws as before, after which the travel is again repeated, and so on until the whole length of the rubber on the mandril is cut into the necessary strips or tapes. The machine is complete with splasher guard to prevent the water which is used for lubricating the tool when cutting, from being thrown about the works; the cutter holder is arranged to carry the end of a small hose pipe bringing the water to the cutter at a pressure. When the cutter has arrived at the end of the mandril, the rest can be readily brought to its first position by a handle fixed upon the screw in the center of the bed at the right hand, care being taken that the hutching paul is liberated from contact when bringing the carriage back; also that the direction of revolution of the mandril when the small clutch is in gear operating cam shaft must also be the same, this direction being indicated on every machine made. Made by David Bridge & Co., Castleton, Manchester, England.

INTERNATIONAL TRADE IN RUBBER GOODS.

I.—THE UNITED STATES.

THE exports of manufactures of India-rubber from the United States, after having long remained at an unimportant figure, have been increasing steadily in value for the past five years. The figures are officially reported as follows, for fiscal years ending June 30:

YEARS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber	TOTAL.
1901-02	$ 634,146	$1,046,315	$1,781,941	$3,462,402
1902-03	819,985	1,056,491	2,299,875	4,176,351
1903-04	879,476	1,086,364	2,469,750	4,435,590
1904-05	994,100	1,214,342	2,572,375	4,780,817
1905-06	1,221,159	1,505,082	2,966,144	5,692,385

Going back twenty years, the official figures make this showing of values of rubber goods exported:

GOODS.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.
Boots and shoes	$ 27,622	$ 36,874	$ 57,047	$ 89,216	$ 74,947
All other	483,094	532,422	577,999	596,940	589,357
Total	$510,716	$569,295	$635,046	$686,156	$664,304

It may be noted here that in the early days of the industry the exports from the United States, especially of rubber footwear, developed to what was then an important extent—to the value of $1,409,007 in a single year (in 1854-55). The ready sale which these goods met abroad led American capitalists to establish such factories as Hutchinson's, in France, and the North British Rubber Co., in Scotland, with the effect of at once checking the American export trade. Then the civil war came on, followed by a period of great internal development during which there was no surplus of manufactures for export. The foreign trade in rubber goods, therefore, may be said to be of recent growth.

The manufacture of rubber footwear having first been developed successfully in America, and on a larger scale than elsewhere, such goods have always figured prominently in rubber exports from here. Before their manufacture was begun in Europe more than 1,000,000 pairs were exported from the United States in a single year. The number declined later to a few thousand pairs annually. During the past six years the figures have been:

1900-01	1901-02.	1902-03.	1903-04.	1904-05.	1905-06.
1,469,100	2,594,688	2,307,401	2,310,808	2,390,539	2,693,670

Nearly 70 per cent. of the footwear goes to Europe. The largest amount is taken by Great Britain, but of this a good share is distributed over the Continent. Germany, France, Belgium, and Turkey are large buyers, but every European country is represented. Outside of Canada, North America is almost a negligible factor. South America takes 1 per cent. of the whole export. Japan and Australia complete the list of important buyers.

The marked increase in recent years of the exports of rubber footwear has been due to concentrated and systematic efforts on the part of the manufacturing interests. Similar efforts are now being inaugurated with regard to other lines of American rubber products, with the probability that equally marked results will be shown. The fact that the individual consumer of rubber goods, as a rule, is a small purchaser, and that such goods are made in such great variety, has always interfered with the development of a foreign market by the method pursued in respect of goods delivered in large lots, or the sale of a single article for which a large demand was possible to be created.

For belting, packing, and hose, Great Britain and Germany are the best European customers; in North America, Mexico, Canada, and Cuba; in Asia, Japan; Australia and British Africa also take important amounts. The exports of these goods for two years have been as follows:

TO-	1899-1900	1904-05.
Europe	$163,101	$164,311
North America	216,053	441,079
South America	32,058	72,892
Asia	37,880	57,483
Oceanica	76,148	114,146
Africa	16,590	144,189
Total	$541,830	$994,100

The customs records give no indication of what is embraced under the heading "All Other Goods" in rubber. Such exports have increased in value more rapidly than the other classes referred to, and they reach a wider distribution. They go to every country on the globe, but most largely to rubber manufacturing countries, doubtless for the reason that in those countries the use of rubber is more general, and there the best market for rubber goods exists.

The total export of rubber goods is not embraced in the official figures, however. Clothes wringers, carpet sweepers, and an immense number of other things, all including more or less rubber, are shipped abroad without being included as rubber goods. Tires that go out on motor cars or other vehicles do not go as rubber goods exports. And this condition is likely to exist as long as customs records are kept.

The exports of rubber goods from the United States do not embrace shipments to our non-contiguous territories, which were, until recently, foreign territory. Such shipments during the past fiscal year were as follows:

TO—	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
Alaska	$ 72,653	$164,223	$ 29,825	$266,701
Hawaii	40,159	10,511	43,944	94,614
Porto Rico	16,430	994	32,844	50,268
Total	$129,242	$175,728	$106,613	$411,583

* * *

THE imports of rubber goods into the United States of late have increased in value more rapidly than the exports. The official returns for the last five fiscal years are as follows:

YEARS.	India-Rubber.	Gutta-Percha.	Total.
1901-02	$ 449,756	$127,780	$ 577,536
1902-03	665,972	225,198	891,170
1903-04	821,562	335,480	1,157,042
1904-05	1,389,064	117,735	1,506,799
1905-06	1,992,413	208,172	2,200,585

The first recorded imports of such goods was in 1854-55, when their value amounted to $43,720. During the civil war the figures in one year reached a trifle over $1,000,000, after which there was a steady decline to the "low water mark," $170,814, in 1879. Since then, until recently, the yearly average has been about $350,000, until recently. What goods figure in the increased imports the customs returns also fail to specify.

The share of the different countries in the increase of imports of India-rubber goods in ten years, up to 1904-05, is shown in the table below. Similar details are not yet available for the succeeding year, during which imports increased still further by 43 per cent. The table follows:

FROM—	1894-95.	1904-05.
Austria-Hungary	$ 278	$ 38,805
Belgium	5	29 634
France	91,060	332,250
Germany	117,859	827,452
Italy	3 348	1,286
Nethertands	5	5,429
Russia	....	32,990
Switzerland	243	1,579
United Kingdom	101,057	115,298
Canada	1,800	3,001
Other countries	247	1,340
Total	$315,902	$1,389,064

America always has afforded a market for German hard rubber goods, and now a certain amount arrives from Austria. Rubber toys likewise come from Germany, in increasing amounts, together with balls, balloons, and the like. And automobile tires must figure in the increase to a considerable extent, from both Germany and France. When automobiles are imported complete the rubber parts are not taken into account at the custom house, so that only tires imported in a detached state figure as "rubber goods." If it should prove true that a large percentage of the increased imports from France and Germany consists of tires, the importation of such goods is much greater than the home manufacturers have been willing to concede.

* * *

RUBBER GOODS TRADE OF CANADA.

EXPORTS of Canadian manufactures of India-rubber for the last three fiscal years (ending June 30) were in value as follows:

TO—	1904.	1905.	1906.
Great Britain	$ 41,043	$ 46,825	$ 92,254
United States	80 730	88,572	227.071
Other countries	78,758	117,559	152,815
Total	$200,531	$252,956	$472 140

IMPORTS into Canada of goods under the same heading were in value as follows:

FROM—	1904.	1905.	1906.
Great Britain	$361,666	$174,281	$ 99 224
United States	606,756	616,435	640,981
Other countries	25,740	26,071	31,690
Total	$994,162	$816,787	$771,895

A PROCESS for making hard rubber articles patented by William R. Sine (United States, No. 831,998) consists in taking a fabric saturated or filled with a rubber compound, subjecting this fabric to a hardening or stiffening treatment to permanently harden it, applying the center layer of rubber compound to the stiffened fabric, placing the permanently hardened or stiffened fabric with the layer thereon within a suitable mold, and vulcanizing.

A PATENT granted to Carl A. R. Steenstrup (United States, No. 830,260) relates to a process of devulcanizing India-rubber having fabric insertions, which consists in supplying an aqueous alkaline solution and hydrofluoric acid to the mass of divided India-rubber in a closed vessel, heating the mass and stirring the same for a protracted period required to devulcanize the rubber and destroy the fabric insertion, and afterward washing and drying the material.

MEXICO'S GUAYULE RUBBER FACTORIES.

REGARDING published rumors that a corner of guayule rubber interests in Mexico by two rival companies, Mr. W. H. Stayton, a vice president of the Continental Rubber Co., said recently, according to the *Mexican Herald*, that at least his company was making no such effort. With so many interests at work as are now engaged in producing and marketing guayule rubber, said Mr. Stayton, there is little chance of any one concern cornering the product.

The Continental Rubber Co., said he, are developing their holdings of guayule in Mexico, and their three factories, at Torreon, Acampo, and Saltillo, are being run at full capacity. In addition to this, he mentioned a dozen other factories at work, all independent of the Continental company.

They were the Anglo-Mexicano company, operating a factory at Jimulco and two at Saltillo; the Madero interests, having a factory at Parcas and two others under construction; the Coahuila Mining and Smelting Co., with a factory at Viesca; the National Rubber Co., at Torreon; and the following, also each with a factory at Torreon: the McGregors, the Clement Jacques interests, and the Torreon Rubber Co. Besides, the Valdespine interests are building a factory at Torreon.

In regard to reports of a new organization to compete with the companies already in the field, Mr. Stayton thought that there would be difficulty in securing guayule lands, since all such lands near transportation facilities are now controlled by one or other of the companies mentioned. Even now the Continental company are having guayule shrubs conveyed, to one of their factories, for more than 100 miles by burros. As the burro must also carry food and water for several days' supply, and his total load does not exceed 200 pounds, it will be seen that conveyance of shrubs by this means is slow and expensive.

The Continental company are using four patents—those of Garza, Delafond, Lawrence, and Hunicke.

SOME WANTS OF THE TRADE.

[349] A PIANO manufacturing company write: "We are in the market for a large amount of rubber tubing, elbows, matting, etc. Please send us THE INDIA RUBBER WORLD."

[350] A German firm write: "We should be very grateful for the addresses of manufacturers of spiral gas tubing."

[351] A subscriber writes: "Did you ever hear of a preparation called 'Adhesia'? I am told it is made in Boston."

[352] An advertiser says: "I have an enquiry for a source of supply for wheels for roller skates made out of material called Hematite which my friend explains is somewhat similar to hard rubber. I would be obliged if you would kindly inform me where these may be purchased."

[353] A well known rubber company wishes to be informed where they could secure samples and prices on fruit jar ring cartons.

[354] "Can you let us know who manufactures machines for testing the tensile strength of rubber," writes one of our advertisers.

RUSSIA'S exports of rubber footwear to Germany in 1905 amounted in value to 2,131,000 rubles [=$1,107,765] and in 1904 to 1,991,000 rubles [=$1,025,365].

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

REFERENCES to the high prices which rubber manufacturers have to pay at the present time for rubber scrap have been commented on by our London contemporary, and Mr. Ernest E. Buckleton has suggested that the matter should come up for consideration at a special meeting of manufacturers. I don't know whether or not this latter has had any response, but it appears to be the feeling in the waste and reclaimed rubber trade that no good could be effected by any such meeting. The present high prices result from the ordinary laws of supply and demand, and any artificial regulation of prices seems doomed to failure. Though the selling prices have certainly gone up during the last year or two, the dealers are emphatic that their profits have decreased. Owing to the largely increased number of collectors, and the competition amongst dealers, much higher prices are now paid by the latter than was formerly the case. It is understood that one prominent dealer suggested to the principal buyers that they should undertake to buy all their requirements of scrap rubber from him for a certain period of time, and he would cause prices to come down 20 or 30 per cent. all right. Nothing seems to have come of this proposition, and anyhow it does not seem to have caused any alarm among the other dealers. One of the latter said that in the event he would at once raise his price to collectors 10 per cent. and so cause a diversion in the course of the traffic. Again it is pointed out that England is not by any means the only available market, as indeed higher prices can generally be obtained on the Continent, where there is an increasing demand.

THE PRICE OF RUBBER SCRAP.

IT was suggested to me very forcibly the other day that some one ought to start an agitation with a view of getting a law passed with the object of ensuring that nothing but pure rubber should be used in such cases as the accessories of feeding bottles. It was also suggested that the large infantile mortality in our large towns was at least accelerated by the cherubs sucking in the decomposition products of substitute. There may not be much in all this as far as the death rate is actually concerned, but I certainly am of opinion that such rubber goods should be made only of pure sheet rubber, and not of the lower priced qualities which contain substitute. It is notorious that medical men nowadays complain of the quality of surgical rubber goods, saying that they are not as reliable as they used to be. The manufacturers no doubt will reply that the doctors will buy in the cheapest market. Still, the matter may easily prove a serious one, and as long as the goods are sold under the name of rubber, and nothing is said as to admixture of other bodies, I think that in the event of anything serious happening the manufacturer or dealer cannot expect to escape all consequences. It is suggested that second quality surgical rubbers should be made of a distinctive color, so that no confusion may arise in the mind of the buyer or user. This might not prove readily feasible, even did the suggestion meet with support, but the whole matter certainly seems to warrant consideration, and it may be taken for granted that old established British firms would welcome any publicity which would show up the competition to which they have been subjected of late years by foreigners. The case is different from goods made of compounded rubber. With regard to the latter, more particularly of insulated cables, the suggestion that rubber goods should come under a law like the Food and Drugs act met with a good deal of derision. In such cases the publication of formulas would benefit the trade at the expense of the individual who has achieved success probably at great pains and expense. Where, however, the health of the public may be supposed to be in jeopardy owing to the use of inferior goods, then it would seem to be in the common weal to put such goods under some such supervision as is exercised over the dealers in food and drugs.

SECOND QUALITY SURGICAL RUBBER.

ALTHOUGH the management of this Manchester proofing works is now in the hands of a receiver, it must not be assumed that the business is in a parlous condition. Indeed, I have it on good authority that an examination of the books shows that the home business has been regularly conducted at a substantial profit, despite the very adverse condition which the proofing trade generally has experienced of late years. The difficulties in which the firm found itself involved seem to have been entirely due to the failure, or it would probably be more correct to say, the mismanagement, of the Canadian branch. This firm is not the only British one which has found the Canadian business turn out unprofitable after an encouraging start. No doubt a complexity of causes are at work in such cases, but I am informed on good authority that it is no use trying to do business direct with customers; the Canadian middleman is a power in the land and those who seek to do without him will court disaster. There may or may not be much in this, but my informant was emphatic in the opinion that there was plenty of good business to be done, if put through the hands of Canadian dealers.

B. COHEN & SONS.

I CANNOT say that I have yet purchased any of these substitutes for linen, but in holiday resorts this season I have been notified of their existence on several occasions, and have heard their praises sung by tourists who are not troubled with lack of means. With the athlete, reduction of baggage is a prominent desire, and the fact that one or two of these collars take the place of a dozen starched linen ones is looked upon as a decided advantage.

RUBBER COLLARS.

UNDER this title a paragraph has appeared in several newspapers relating to a monopoly obtained by a British firm in Abyssinia. From inquiries made at 56, Bloom street, Manchester, I am enabled to state that the concession granted by the emperor of Abyssinia to Mr. Hassib Ydlabi, of Hassim Ydlabi & Rehan, of Bloom street, has been taken over by a newly formed company called the Ethiopian Rainproof Monopoly Co., with a capital of £100,000. I am informed that it is only proposed to deal in rainproof goods, and that though the company is British in its origin, buying in the cheapest market will be a prominent feature in its trading routine. The monopoly is for 25 years. The climate of Abyssinia varies considerably according to locality. The country is by no means all of the sandy desert nature

MONOPOLY IN WATERPROOFS.

associated with North African regions; there are wooded districts where a heavy annual rainfall obtains. Now that railways are making their influence felt in the extension of commerce in the country, there is likely to be a good deal of competition between business firms of England, France, and Germany. It is a commonplace that the Ethiopian cannot change his skin, but there is no saying what an advanced education may not cause him to change in his attire, and it will be to the benefit of the new company to persuade him that he is incomplete without a rainproof coat.

FORTHCOMING NEW BOOK.

MESSRS. ARCHIBALD CONSTABLE & CO., LIMITED, the well known London publishers, have in preparation a new series of technical works dealing with the various industries and manufactures. One of the volumes will be devoted to rubber and its manufacture. The name of the author doubtless will be announced shortly.

NOTES.

UNDER the name Macintosh Tyre Co., a company in close business connection with Charles Macintosh & Co., Limited, but of distinct management, has been formed, presumably to forward the interests of and to deal in the motor tire with which the rubber firm have been experimenting for some time. From those who have used this tyre I hear nothing but favorable reports, but the makers have been in no hurry to push the sale until the extended trials which they themselves initiated had satisfied them of its efficiency.===I understand that Mr. James E. Baxter and friends have rented one of the islands of the Orkney group this autumn, good mixed shooting being the principal attraction.

PETROLATUM IN RUBBER COMPOUNDING.

THE use of petrolatum or vaseline as a rubber compounding ingredient has become very general, especially in the mechanical goods and reclaimed rubber manufacture. It is one of the numerous products of petroleum or rock oil derived by distillation. These products are classed as follows:

Light oils, including gasoline and naphtha.
Illuminating oils, kerosene.
Residuum or tar.

From the latter subdivision is separable, by further increase of heat, heavy lubricating and paraffin oils, among which are petrolatum or vaseline, and coke as a waste product.

Petrolatum is considered to be a mixture of paraffin and volatile oils. It is separated from the residuum of crude petroleum which has been subjected to the vacuum process of distillation in contradistinction to the "cracking" process by which some of the natural constituents are chemically broken up to form new bodies. The residuum being kept fluid by steam, the finely divided coke resulting from the distillation is allowed to settle out and the clear oil drawn off and filtered through bone charcoal contained in cylinders, in order to remove the color and odors contained in it. Sometimes the oil recovered from the residuum is treated with sulphuric acid and potassium bichromate for the removal of certain impurities before the filtration through bone charcoal. This is said to be the German process.

Petrolatum gains much of its value from its indifference to all chemical treatment, thus resembling paraffin very closely. It is generally familiar as a dense product, pale yellow, translucent, slightly fluorescent, semi-solid melting at about 100° Fah., and having a specific gravity of 0.850. Its chemically inert quality peculiarly adapts petrolatum to use in rubber compounding where a non-oxidizing lubricant and softener is needed to facilitate the manipulation of harsh or dry compounds, and which will not subsequently develop in the finished goods injurious or other inconvenient qualities. Simple softening of rubber any oil will accomplish, but for all around adaptability petrolatum excels all others.

For many years palm oil was considered to be the best oil for compounding purposes, because it is a vegetable oil and solid at ordinary temperatures. Vegetable oils were generally conceded to be the least injurious to rubber. The principal objection to palm oil in this connection is its tendency to oxidize and nothing with that quality is desirable as a compounding ingredient, since oxidation is fatal in its effects on rubber goods. Petrolatum is absolutely free from this objection and leaves nothing to be desired in its qualities as a lubricant. Ordinarily 2 or 2½ per cent. of petrolatum is sufficient in any compound where its presence is needed, although 5 or even 7 per cent. may be employed in special cases. Cheap goods containing petrolatum will withstand drying out or hardening with age, a similar effect being produced by the use of soft coal tar.

As regards the item of economy, petrolatum commends itself to the rubber manufacturer when considering the use of an oil ingredient in compounding. For all ordinary purposes, everything except perhaps the whitest goods, the dark filtered stock is entirely suitable and the price will be less than the light filtered stock.

The use of patrolatum and all other oils should be strictly under control and ordinary workmen never be permitted to have access to them, otherwise irregularities of compounding so numerous and complicated as to be past finding out, may result from their indiscriminate use for doctoring burnt stock and stock difficult to run on the machines.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of August, 1906, and for the first eight months of five calendar years:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
August, 1906.....	$136,709	$173,812	$ 290,586	$ 601,107
January-July.....	663,536	615,154	1,803,512	3,082,202
Total.....	$800.245	$788 966	$2,094,098	$3,683,309
Total, 1905... ...	755,988	767.775	1,918,481	3,442,244
Total, 1904.....	570,972	651,392	1,600.574	2,822,938
Total, 1903.....	568,797	507,897	1,655,396	2,732,090
Total, 1902..... .	459.871	524,629	1,298,132	2,282.652

"RUBBER IS KING."—The rubber supply of the future will have to expand greatly in order to meet the demands of the motor vehicles, all of which have to roll on that elastic gum or quit business. "Rubber is king" may be a watchword one of these days, plucking the crown away from cotton, which wore it so proudly and so long.—*New York Tribune*.

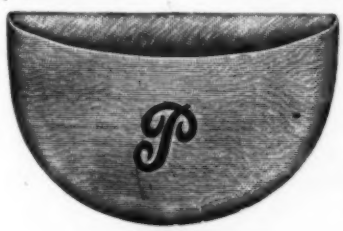
NEW GOODS AND SPECIALTIES IN RUBBER.

DR. DECKER'S FOUNTAIN SYRINGE.

A RADICAL departure from the general construction of syringe nozzles has been made in the self-retaining and non-plugable nozzles of Dr. Decker's invention. The number of openings makes possible most thorough flushing, and the canal through the center furnishes an exit for waste water. If, however, it is desirable for the water to be retained, the canal may be filled with non-absorbing cotton. It will be observed, by the illustration, that the openings are not confined to the large end of the nozzle, but, also, extend about the margin of the extended portion of the nozzle. As it is rotated an effective cleansing is obtained. The rectal nozzle has four openings (none on the end) so it is impossible to plug them. [Hygeia Nursing Bottle Co., Buffalo, New York.]

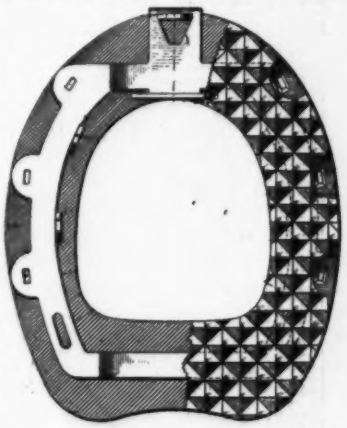
BUCKSKIN RUBBER LINED TOBACCO POUCH.

THE manufacture of tobacco pouches has long formed an important item in the rubber trade in England, for every Britisher loves a pipe, and naturally welcomes a convenient and serviceable receptacle for his tobacco. Besides, there is a demand for attractive pouches, and there are many smokers to whom expense is no object. The cuts herewith relate to a splendid line of tobacco pouches, manufactured by a leading British firm. It is a buckskin rubber lined pouch. The covering may be of any kind of fine skins—antelope, seal, snake, lizard, or the like. Some of these pouches are very ornate, and can be had embellished with gold plates, for initials or monograms. [Charles Macintosh & Co., Limited, Manchester.]==A tobacco pouch recently brought out by another firm, also English, and called the "Diana," while of the same general type as shown in the illustrations, possesses some distinct features in construction. It can be opened wider than other pouches, enabling the pipe to be filled conveniently by dipping it into the tobacco, there being thus less liability to spilling. Besides, the flap closes automatically with the pouch, and retains the contents with absolute security.



AN ELASTIC TREAD HORSESHOE.

THE horseshoe illustrated here consists of an elastic tread section, within which is located a skeleton frame of metal, conforming to the contour of the rubber part. The frame is provided with apertured offsets, whereby when the tread section is cast on the frame, the different parts will be firmly united, and with downwardly extending stop plates on the toe portion of the frame, and between which the material of the elastic tread section is held. To add further to the comfort of the horse, the upper surface of the shoe may be covered with a cushion material, such as leather. The illustration relates to a bar shoe, though the invention is adaptable to other forms. It shows a portion of the elastic tread removed, to give an idea of the construction of the metal frame. United States patent No. 772,050, granted to F. D. Palmer and Alfred H. Isham.



GOODRICH SURGICAL BASINS.

ONE of the chief requisites of successful surgical operations lies in having recourse to every possible means whereby facility, convenience, and cleanliness are enhanced. Rubber surgical accessories have been more and more resorted to as meeting these requirements, until now the list is indeed a long one. For example, pus basins, such as those shown in the illustration, have been tested and found most satisfactory to operators, nurses, and patients. The foundation consists of a soft brass rim ⅞ of an inch wide, rubber covered. The body of the basin is made of pure strong gum. They can be shaped to conform to any surface and when pressed against or tied to the body fit so snugly that no fluid can get between the basin and the skin. They are made in 6 inch and 8 inch sizes, and they can be folded in compact little packages. [The B. F. Goodrich Co., Akron, Ohio.]

WATERPROOF AUTOMOBILE APPAREL.

A RUBBER proofed coat for automobilists' use that promises to become very popular is shown in the illustration. It is called a Poncho Coat and is designed for men's wear, on lines that are for convenience rather than style. Through the casing around the neck a ribbon is drawn, which serves to fasten the coat snugly and admits of no possible place of entry for the rain. The same firm (Saks & Co., New York), offer many other specialties in automobile apparel, for men and women, boys and girls. Something new is a waterproof coat for growing girls, designed for use for more than one season. It is described as a shirt coat, and is draped loosely from the shoulders without defined lines, so that it may be of service long after a closer fitting garment would be outgrown. The yoke is elastic, which leaves the coat without a vulnerable point for the rain, wind, or dust. The seams are sewed and then cemented. Similar coats are made for growing boys.

MOTORISTS' PONCHO COAT.

THE COLDITZ SELF RENEWABLE HEEL.

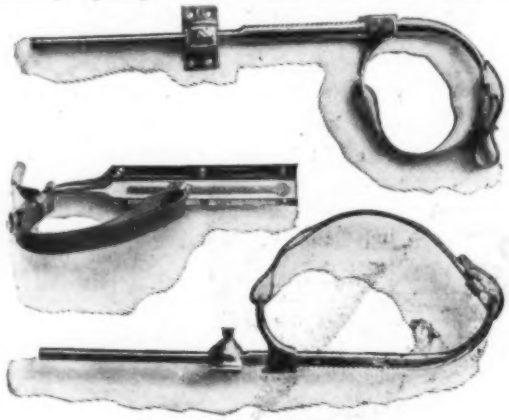
SINCE heels were first used on shoes, whatever the material, they have been stationary, but there has now been brought out a renewable and interchangeable heel. The heel plate is about $\frac{1}{16}$ of an inch deep and has turned-up flanges. It is countersunk to a corresponding depth in the heel of the shoe and is fastened thereto with five tacks. The side plate with punched-through flanges is secured to the detachable heel. It is fastened to the heel either with tacks (when half a heel made of leather is wanted), or with rivets (when a rubber heel is wanted). When a top plate only is wanted it is attached by means of projected edges which are clinched into the heel plate. H. M. Colditz, of Milwaukee, Wisconsin, is the inventor.

THE HASKELL-MATCH GOLF BALL.

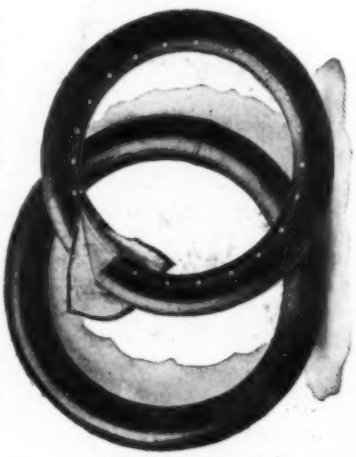
IT is not so many years, measured by the average lifetime, since the "ancient and royal" game of golf was introduced into the United States. Yet the game wherever played has been revolutionized by the introduction of the rubber cored ball, due to the disposition of the American never to be satisfied with the established order of things, but to try to invent something new. The Haskell ball was the pioneer in this field, and it still holds a commanding position. Reference is made to it now for the reason that the manufacturers, alive to every opportunity for raising the standard of their product, have brought out their ball with a new finish, and are marketing it under the brand "Haskell-Match." [The B. F. Goodrich Co., Akron, Ohio.]

ALLEN TIRE HOLDERS AND CASES.

AN article for motorists' use that for convenience and adaptability, it will be hard to excel, is found in a self-adjusting tire holder now on the market. Instead of having a stationary capacity the holders illustrated herewith will carry any size from 3½ inch up to two 5-inch shoes. A little ratchet device furnishes the means whereby this extension is acquired. These holders are made of highly polished special bronze. The fact that the holders can be removed when not in use adds to the appearance of the car, and the removal can be effected by merely taking out the screws which hold it, requiring but a moment or two. That this does does not detract from the security of the attachment is a matter for consideration. The Tire Cases, also illustrated, are said to be absolutely dust, oil and water proof. They fit securely being fastened with ball and socket and are made in all colors of enameled duck. The cut is to fit each make and size of tire, [The Allen Bag and Specialty Co., No. 1931 Broadway, New York.]



ALLEN'S TIRE HOLDER.



ALLEN'S TIRE COVER.

RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED SEPTEMBER 4, 1906.

NO. 829,952. Syringe [Surgical]. W. M. Dean, Chicago.

829,979. Hermetic closure for tumblers. W. A. Lorenz, Hartford, Conn.

829,980. Hermetic closure for tumblers. *Same.*

829,981. Hermetic closure for tumblers. *Same.*

830,005. Vulcanizer. L. E. Rice, Cedar Falls, Iowa.

830,133. Horseshoe. W. J. Connally, Atlanta, Ga.

830,167. Fruit jar ring. F. C. Pelster, Omaha, Nebr.

830,250. Cushion insole for shoes. C. H. Peeble, Chambersburg, Pa.

830,260. Process for devulcanizing India-rubber. C. A. R. Steenstrup, assignor to Aktieselskabet Gummi-Regenerations Societet, System Resen-Steenstrup), Copenhagen, Denmark.

830,267. Vehicle tire. W. Westney, Scotland, Conn.

830 403. Horseshoe. R. Barclay, Youngstown, Ohio.

330,458. Boot or shoe heel. J. B. Sheehan, New York city.

830,467. Non slipping tire. M. Vivian, Cheswick, London, England.

Trade Marks

537. E. G. Soltmann, New York city. The words PAR EXCELLENCE. For rubber erasers.

8,841. Revere Rubber Co., Boston. The word SECURITY. For belting, hose, and machinery packings.

ISSUED SEPTEMBER 11, 1906.

830,488. Wheel tire [in sections]. N. Beckwith, Somerville, Mass.

830,581. Inflated ball. C R. Fleischman, Chicago.

830,582. Inflated ball. *Same.*

830,661. Pneumatic knee pad. E. G. Gresham, Dunedin, New Zealand.

830,664. Storm top for vehicles. W. A. Hunter, Terre Haute, Ind.

830,695. Process of and apparatus for manufacturing lined metallic hose. E. Witzenmann, Pforzheim, Germany.

830,858. Piston rod packing. A. L. Shaffer, Omaha, Nebr.

830,873. Cushion tire for vehicle wheels. L. H. Barry, Durango, Mexico.

830,885. Valve attachment for fountain pens. F. O. Conill, New York city.

830,889. Atomizer. C. J. Davol, assignor to Davol Rubber Co., Providence. R. I.

831,004. Inhaler. F. E. Jousset and A. D. Jousset, New York city,

Design.

38,238. Rubber matting. A. J. Whisler, assignor to Goshen Rubber Works, Goshen, Ind. *Claim.*—Ornamental design for rubber matting.

Trade Marks.

3,662. I. B. Kleinert Rubber Co., New York city. The words THE BEST WARRANTED KLEINERT. For dress shields.

8,834. Revere Rubber Co., Boston. The word VIGILANT. For belting, hose, and machinery packings.

8,835. Revere Rubber Co., Boston. The word PILOT. For belting, hose, and machinery packings.

19,286. Dr. Pierre Chemical Co., Chicago, Ill. The word PHENO. For syringes.

ISSUED SEPTEMBER 18, 1906.

831,041. Process for purifying Chicle gum, or other adhesive. S. A. Davis and F. V Canning, New York city.

831,099 Packing. C. Restein, Philadelphia.

831,199 Combined eraser and brush. J. H. Ezmann, Jr., Brooklyn, N. Y.

831,358. Hose coupling. J. T. Lally, Wilmington, Del.

Design.

38,241. Rubber fabric. J. Hardman, Jr. Belleville, N. J., assignor to The International Automobile and Vehicle Tire Co. *Claim.*—Ornamental design for rubber fabric.

Trade Marks.

8,836. Revere Rubber Co., Boston. The word COLUMBIA. For belting, hose, and machinery packings.

8,837. *Same.* The word BURRO.

8,838. *Same.* The word HARLEM

8,839. *Same.* The word EMPEROR.

8,842. *Same.* The word ZENITH.

8,843. *Same.* The word ULYSSES.

8,844. *Same.* The words OLD HICKORY.

8,845. *Same.* The word GINGO.

[All the preceding for belting, hose, and machinery packing.]

ISSUED SEPTEMBER 25. 1906.

831,537. Elastic check loop. C. A. Cornell, assignor to Berkshire Specialty Co., Pittsfield, Mass.

831,586. Rim for vehicle wheels. [For holding pneumatic tire.] F. A. Wilcox, Akron, Ohio.

831,623. Inhaler. F. B. Murphy, Logansport, Ind.

831,632. Means for removably attaching tires upon vehicle wheels. J. C. Schleicher, Mount Vernon, N. Y.

831,831. Artificial bait H. C. Clippinger, assignor to M. E. Metzger and D. W. Brown, of Akron, Ohio.

831,891. Rescue buoy. J. C. Quarterman, Titusville, Fla.

831,920. Artificial hand for playing chords. B. E. Amend, Portland, Ore.

831,975. Horseshoe. C. D. Murphy, Kingston, Minn.

831,998. Hard rubber articles. W. R. Sine, Williamsport, Pa.

Trade Mark.

4,652. The Goodyear Tire and Rubber Co., Akron, Ohio. The word GOODYEAR and a foot of mercury. For horseshoe pads, rubber tiling, and rubber heels and soles for boots and shoes.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1905.

* *Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, AUGUST 29, 1906.]

*9,054 (1905). Method of attaching elastic tires to rims. C. Motz, Akron, Ohio.

*9,055 (1905). Life-saving appliances [consisting of a double walled sleeve, for wearing upon the arm, containing an inflated bag, and provided at the end with webbed gloves]. T. J. Hruby and T. J. Jirik, both in Chicago.

9,072 (1905). Joint-making packing. P. Schou, Copenhagen, Denmark.

9,169 (1905). Pneumatic tire. J. Bolton, London.

9,206 (1905). Hose pipe for suction dredgers. J. Taube, Riga, Russia.

9,567 (1905). Means for securing revolving rubber pads to heels of boots. J. Wilkinson and A. Wilkinson, Manchester.

[ABSTRACTED FROM THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 5, 1906.]

9,616 (1905). Sole and heel protector. J. Latham, Farnworth, Lancashire.

*9,678 (1905). Rubber sole with non slipping device. P. M. Justice, London. (Grieb Rubber Co., Trenton, New Jersey.)

9,738 (1905). Means for securing rubber studs in soles and heels of boots so that they are watertight. A. Miles, Cardiff.

*9,781 (1905). Fountain pen. O. E. Weidlich, Cincinnati, Ohio.

9,801 (1905). Pneumatic tire [protected by a chrome leather cover]. K. C. Goodman, Reading.

*9,886 (1905). Pneumatic tire. I. Tennant, Springfield, Ohio.

9,920 (1905). Elastic tire. A. E. Evans, Newport, Shropshire.

9,985 (1905). Pneumatic tire. [Device for preventing skidding consists of a metallic linked chain having hooked ends which take cross-bars shaped flatter than the contour of the tire.] G. S. Sayner, Harrogate, Yorkshire.

10,067 (1905). Apparatus for administering electricity for medicinal purposes. G. J. Macaura. Bradford, Yorkshire.

10,077 (1905). Outer cover for pneumatic tires [composed of a

number of segmental pieces of leather sewn together in pairs and then sewn end to end]. L. Cox, Birmingham.

10,166 (1905). Fishing bait. L. A. Crossle, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 12, 1906.]

10,244 (1905). Overshoe for golfers. G. C. de Rinzy, Georgetown, Demerara, British Guiana.

10,393 (1905). Means for securing elastic tires to rims. S. Simpson, Exeter.

10,401 (1905). Bottle stopper. [Relates to a bottle for holding liquid required to be withdrawn drop by drop, the liquid being removed through a flexible rubber appliance attached to a rod fixed in the cork.] K Zum Tobel, Ravensburg, Germany.

10,499 (1905). Pneumatic tire [secured to the rim by forcing the edges apart by the action of a wedging-strip, which is tightened by a screw passing through the rim]. W. T. Smith, Bolton, Lancashire.

10,500 (1905). Means for securing metal treads to rubber tires by studs. *Same.*

10,613 (1905). Elastic tire. W. B. Hartridge, London.

10,662 (1905). Pads for curing headache by applying pressure to the temples. S. A. Bhisey, Islington, London.

*10,673 (1905). Fountain pen. J. Blair, New York city.

*10,678 (1905). Resilient protector for elastic tires. [Consists of separated circumferential metal rings, and an outer circumferential metal tread ring, the whole sprung into position and retained without additional securing means.] E. Krebs, Albany, New York.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, SEPTEMBER 19, 1906.]

*10,754 (1905). Vacuum cleaning apparatus. A. E. Moorhead, Oakland, Calif.

*10,778 (1905). Pneumatic tire [consisting of a series of resilient annular tubes arranged inside a tubular cover]. G. S. Squires, Boston, Massachusetts.

10,823 (1905). Tool for removing and replacing pneumatic tires. L. Mellor, Tideswell, via Buxton, Derbyshire.

10,836 (1905). Fountain pen. G. W. Hughes, Birmingham.

10,859 (1905). Golf ball. [In order to diminish the spin given to a ball when it is sliced in driving, and to assist putting by causing a ball to come to rest quickly when it begins to slow down, the ball is formed with a central cavity partly filled with mercury. The ball consists of an elastic steel globe, enclosed in a casing of Gutta-percha.] R. P. Wilson, Westminster.

11,236 (1905). Elastic tire. [Segmental rubber tires fitted between transverse partitions on the rim.] A. F. Stevenson, Warrington, Lancashire.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

363,029 (Feb. 6, 1906). Rousseau & Hancourt. Vulcanized fiber.
363,182 (Jan 27). C. H. Scott. Oilcloth machine.
363,113 (Feb. 9). E. Lapisse. Pneumatic tire.
363,121 (Feb. 9). DeClosel. Spring wheel.
363,154 (Feb. 12). C. Burnett. Elastic tire.
363,178 (Jan. 24). Baron de Bourgoing. Spring wheel.
363,188 (Jan. 30). G. Lepoutre. Spring wheel
363,225 (Feb. 12). Subra. Pneumatic tire.
363,338 (Feb. 16). Ripley & Sautler. Automatic antiskid.
363,144 (Feb. 12). H. Penther. Method of repairing waterproof goods.
363,291 (Feb. 14). F. C. Hood. Rubber washing machine.
363,339 (Feb. 16). B. Grätz Rubber purifying process.
363,341 (Feb. 16). Same. Preparing rubber for vulcanization.
363 386 (Feb. 17). Hartridge. Leather tire.
363,402 (Feb. 19). J. Edmondson. Pneumatic tire.
363,576 (Feb. 23) Freeborn. Dentists' plate vulcanizer.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counsell, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

A CRITICAL review of the genus *Sapium*, and particularly of the rubber yielding species included in it, contributed by Dr. Jacques Huber, of the Pará Museum to the *Bulletin de l'Herbier Boissier* (Geneva), and a monograph of interest and value, has been reprinted separately in a brochure of 50 octavo pages.

PROCESS FOR SOLING CANVAS SHOES.

A NEW invention by Thomas Miller, Auburn, Rhode Island, relates to means for vulcanizing rubber soles to shoes, its object being to provide a simple apparatus whereby rubber soles, heels, and foxing may be molded on to canvas or other shoes, and secured permanently thereon by vulcanization of the rubber while under a great pressure. The practice in making these canvas shoes has been to form the rubber sole separate, cement it on to the rubber, and then place the shoe and sole in an oven and vulcanize them without the use of pressure. Not only are shoes thus constructed apt to pull apart, but they do not present the same finished appearance as when molded into exactly the required form under pressure.

The illustrations are as follows: Fig. 1—Side elevation

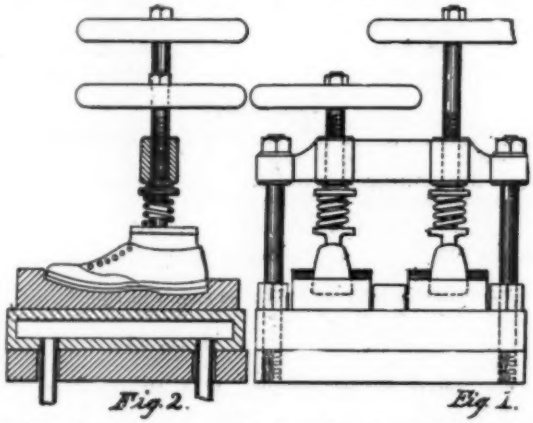


Fig. 2. Fig. 1.

showing clamping press with two shoes in position to have soles vulcanized thereon; Fig. 2—Side elevation partly in section showing clamping device, steam chamber, and shoe in position in the mold.

Claim 7 of the patent specification reads: "In a device of the character described, a mold made in one piece adapted to form heel, sole, and foxing portion only of a shoe, a last over which a shoe may be formed, flexible means for applying pressure to said last, said last adapted to fit the mold and assist in the formation of the heel, sole and foxing portion therein, said mold being so formed as to closely fit the upper on the last at the foxing line thereof to cause a resistance when under pressure and insure the plastic material being forced into the pores of the upper and adhere to the same and means for applying heat to the material."

THIS item of history in connection with the trade occurs in an article on book collectors and book sales, in the London *Daily News*: "The late Mr. Edwin Truman was perhaps the oldest book collector in London when he died in April, 1905. As some will remember, he was dentist to the royal household for over half a century, and it was he who discovered that Gutta-percha can be purified in any quantity by mechanical means without injury to the material. Mr. Truman never paid large sums for books or prints, yet for a volume of seventeenth century plays which cost him 2*s.*, £88 was realized on February 15." We have not found elsewhere a record of Mr. Truman's connection with the trade as stated.

THE LATE GEORGE F. HODGMAN.

IN the death of George F. Hodgman the trade suffers a double loss. Any branch of business which numbers among its leaders men of the high standard of character which his life exemplified, benefits distinctly from their influence. Besides, every rubber man who possessed the friendship of Mr. Hodgman—and they were many—will feel a real personal loss from his passing away.

Mr. Hodgman was of New England descent. His father, Daniel Hodgman, a native of New Hampshire, with an ancestry in that region of several generations, began business for himself at Roxbury, Mass., in early manhood, but finding it uncongenial, he removed to New York and made a new start in life. In 1838, at the age of 30 years, he opened a store at No. 27 Maiden lane in which rubber goods were embraced; in 1839 he was advertising mackintoshes, which he produced here almost as early as they were made in England; in 1840 he built a rubber factory at the foot of Twenty-sixth street, at the East river, which was operated until destroyed by fire in 1853. A new factory was erected in that year at Tuckahoe, N. Y., and later an additional factory at Mt. Vernon, both of which are still in operation. Daniel Hodgman was one of the early licensees under the patents of Goodyear, having allotted to him the right to make rubber door springs—an article which at one time had a great vogue. Mr. Hodgman manufactured many other articles of rubber, however, his faculty for invention enabling him to make them independent of the vulcanization patents. As early as 1839 he was awarded a silver medal by the American Institute for rubber clothing and life preservers, and the Hodgman factories engaged in the production of a great variety of articles, but from the beginning the name of Hodgman has been identified closely with the mackintosh manufacture.

GEORGE F. HODGMAN.

Daniel Hodgman died at Tuckahoe in 1874, at the age of 66 years. His widow retained her interest in the factories until her death in 1885, when the sons, who had become identified with the business, had it incorporated as the Hodgman Rubber Co. The Maiden lane store above mentioned was retained by the Hodgmans for 41 years, and when the growth of their business made necessary larger facilities, further up town, it remained a rubber store, in other hands, for many years longer.

George F. Hodgman was born in New York city, in City Hall place, on December 20, 1844. He became associated with his father in business after leaving school, coming into its control after the father's death, and after the incorporation of the Hodgman Rubber Co. was its president. While but 61 years of age at his death, he lived to see great changes in the methods of manufacture of rubber goods and of conducting the rubber business, to which he contributed not a little that was of value.

For a long while Mr. Hodgman was in the habit of going abroad for a vacation every year or so. He sailed for Europe this year on June 15, apparently in perfect health, accompanied by Mrs. Hodgman. During August heart trouble developed, and his death took place at Garlants Hotel, in London, on September 28. His younger son, S. Theodore Hodgman, learning of his father's serious condition, hastened to London, arriving five days before Mr. Hodgman's death. Funeral services were held on October 16, in New York, at the Madison Avenue Methodist Episcopal church, of which Mr. Hodgman had been a member and secretary of the board of trustees since its organization, 25 years ago. The services were conducted by Bishop Andrews and by the pastor of the church, the Rev. Dr. Wallace MacMullen. The services were simple, as befitted one who had a profound appreciation of the beautiful. In consonance, therefore, with his life was the music, the altar banked with flowers, tributes from friends far and near, the great hushed audience that gathered for a last farewell, and the touching word picture of the life as his pastor and friend knew it. The attendance included many members of the rubber trade. Among the honorary pallbearers representing the trade were the Hon. L. D. Apsley, Benjamin F. Taft, Arthur W. Clapp, and E. E. Huber. The interment was at Kensico cemetery.

In 1866 Mr. Hodgman married Miss Louise Barker, daughter of the late Stephen Barker, who survives him, as well as two sons, George B. and S. Theodore Hodgman, who are respectively treasurer and secretary of the Hodgman Rubber Co. Mr. Hodgman was a member of the Union League Club, the New York Chamber of Commerce, the New England Society, and the Knollwood Golf Club. He was president of the Rubber Sundries Manufacturers' Association and a charter member of the Rubber Manufacturers' Mutual Insurance Co., of Boston, and latterly a member of its finance committee. Mr. Hodgman's earlier life was spent in New York city, until 1853, when he went with his father to Tuckahoe, N. Y. In 1874 he returned to the city, where he afterward resided.

The profound sense of personal bereavement that comes to the writer through the passing of Mr. Hodgman is shared by the trade throughout the land. A typical New Yorker, prompt, aggressive, capable, intolerant of injustice, quick to respond to the appeal of the needy, cheerful, companionable, with deep religious convictions, he was a rare spirit, and honored the trade with which his name was so prominently associated. May his memory live long in the hearts of those fortunate enough to call him friend.

THE RUBBER SHOW AT PERADENIYA.

THE Ceylon Rubber Exhibition of 1906, held at Peradeniya, under government auspices September 13-27, appears from all reports to have been a highly successful affair. Planned in the first instance by a planters' association, as a local show, to last for a day or so, earlier in the year, the idea commended itself so strongly to the government that it was taken in hand enthusiastically, its scope broadened, and a two weeks' exhibition was the result.

The exhibition was held in buildings constructed especially for the purpose, in the Peradeniya gardens, at the public expense. Some 200 men were employed on the buildings, which were completed in good time for the opening of the exhibition. The buildings were of the native Kandyan type of architecture and decoration. The entrance to the main building was through a portico shaped somewhat like a huge pagoda, and led to a hexagon 50 feet wide, from which three wings branched off, each 60 × 36 feet. The stands for exhibits in these wings were arranged on either side of the room, with a third row down the center. The attempt was made to render the buildings attractive inside and outside. For instance, the roof of the hexagonal central building was ceiled with paintings illustrating Kandyan history and legend. There were a number of smaller buildings—one for instance assigned to the governor; one used as a refreshment building with the Queen's Hotel, Limited, as caterers; a music stand, and separate special buildings for exhibits in other interests than rubber, including a pavilion for displaying the geological resources of Ceylon. Special sheds were provided for the machinery exhibits, including the steam engines installed for supplying power.

The exhibition was opened by the governor of Ceylon, Sir Henry A. Blake, G. C. M. G., in his official capacity, attended by a military escort. He was, besides, president of the Exhibition. The exhibition committee was made up of the Hon. Mr. J. P. Lewis (chairman) and Mr. E. B. Denham (secretary), of the Ceylon civil service; the Hon. Mr. E. Rosling; Messrs. T. C. Huxley, Edgar Turner, and James Ryan; Dr. J. C. Willis, director botanic gardens; Mr. M. Kelway Bamber, government chemist; and Mr. Herbert Wright, controller experiment station.

Prizes were offered for the best samples of Pará in "biscuit," "sheet," "crepe," "worm," and "scrap"; *Castilloa* and Ceará in different forms; and, "rambong" (*Ficus*) rubber—first, for Ceylon only, and secondly, open to all exhibitors. Also, the best collection of rubber other than those above named, and for the best commercial sample of rubber in the show. Samples not to be less than 5 pounds. The official list of prizes for rubber exhibits included 24 gold medals, 25 silver medals, 3 silver cups, and a silver bowl worth £15 15*s*, [=$76.65]. Besides, special prizes were offered, by planters' associations for example. One was for the best Pará rubber grown above an elevation of 3000 feet.

Additional prizes (including 26 gold medals) were offered for instruments for tapping rubber trees—Pará, *Castilloa*, Ceará, and "rambong"; for assisting the flow of latex from trees; for storing latex; best methods of coagulation; for drying rubbbr; for obtaining rubber from twigs, leaves, etc.; best methods of packing rubber for shipment; best rubber washing machine; models of curing house, and so on.

The Kandy District Planters' Association offered a prize for the best implement for and method of tapping Ceará rubber. The Kalutara association offered a prize for a model rubber curing house.

The rubber exhibits were judged by three experts sent out from London for the purpose: Charles Devitt, of Lewis & Peat; Spencer Brett, of Gow, Wilson & Stanton; and C. K. Smithett, of Wilson, Smithett & Co.

PRIZES AWARDED FOR RUBBER.

CEYLON ONLY.

Pará Rubber Biscuits (46 competitors).—Gold medal Duckwari estate; silver medal, Katugastota; extra silver medal, Duckwari (second sample); honorable mention, Arapolakande. Silver cup to superintendent of Duckwari.

Pará Biscuits, Smoked.—Gold medal, Arapolakande.

Pará Rubber Sheet (23 competitors).—Gold medal, Syston; silver, Kondesalle; honorable mention, Delahena. Silver cup to superintendent of Syston.

Pará Rubber Crêpe or Lace (4 competitors).—Gold medal, Culloden; silver, Heatherley.

Pará Rubber Worm, Flake, Block, or Other Form (7 competitors).—Gold medal, Gikiyanakande; silver, Culloden.

Castilloa Rubber Biscuits (1 exhibit).—No award.

Castilloa Rubber Sheets.—No exhibits.

Castilloa Rubber in Any Other Form excluding Scrap (1 exhibit).—Silver medal, Culloden.

Ceara Rubber Biscuits (12 competitors).—Gold medal, Rangbodde; silver, North Matale. Silver cup, superintendent of Rangbodde.

Ceara Rubber Sheet (4 competitors).—Gold medal, Kondesalle.

Ceara Rubber in Other Forms (2 exhibits).—No award.

CEYLON AND ABROAD.

[* Denotes Awards to Straits and Malay States Exhibitors.]

Pará Rubber Biscuits (8 competitors).—Gold medal, Duckwari; silver medal, Arapolakande; honorable mention, Kanagastota.

Pará Rubber Sheet (13 competitors).—Gold medal, Syston; silver, Kondesalle; extra silver medal, Kuala Kangsa Gardens*; honorable mention, Kamuning.*

Pará Rubber Crêpe or Lace (10 competitors).—Gold medal, Culloden; silver, Pataling.*

Pará Rubber in Other Forms.—Gold medal, Lanadron (for block rubber,*; silver, Gikiyanakande; honorable mention, Culloden.

Pará Rubber Scrap (32 competitors).—Washed: Silver medal, Vallambrosa*; honorable mention, Jebong*. Handmade: Gold medal, Heatherley; silver, Kepitigalla; honorable mention, Kanagastota.

Rambong Rubber (6 competitors).—Gold medal, Golden Hope*; silver, Sungei Rengum.*

Best Collection of Rubber (other than mentioned already).—Gold medal, Arapolakande; silver, Gikiganakande.

Best Commercial Sample of Rubber in the Show.—Gold medal, Lanadron* (for block rubber); silver, Duckwari; additional silver medal, Koudesalle; honorable mention, Arapolakaude and Rangbodde. Silver bowl, superintendent of Lanadron.*

The first honor was taken by Lanadron estate, Johore, for rubber prepared in a new form—blocks. Ordinary crepe rubber is put through a vacuum dryer and pressed in a screw press into blocks a foot square and weighing 25 pounds. This is the estate of Mr. F. Pears, of the Pears' soap company.

The very extensive collection of machinery for handling crude rubber, and implements for tapping trees attracted much attention. Liberal prizes were offered in this department, as for exhibits of crude rubber, but further attention to them in this journal must be deferred to another issue.

TIRES AT THE VANDERBILT CUP RACE.

SEVENTEEN motor cars were run in the third annual contest for the Vanderbilt Cup, near New York, on the morning of October 6—five each entered from the United States, France, and Italy, and two from Germany. The course was 29.7 miles in length and ten rounds were made, giving a total distance of 297.1 miles. The race came to an end when five cars had covered this distance, the order of finishing being as follows:

First, Wagner of France, Darracq car.
Second, Lancia of Italy, Fiat car.
Third, Duray of France, De Dietrich car.
Fourth, Clement of France, Clement car.
Fifth, Jenatzy of Germany, Mercedes car.

The positions of the American drivers were eighth, tenth, thirteenth, fourteenth and sixteenth. One American, Le Blon, covered nine laps and another, Tracy, eight laps. Wagner's time was 4 hours 50 minutes 10⅘ seconds, or an average of 61.43 miles per hour. Lancia's time was slower by only about 3 minutes. Duray came in 16 seconds later.

The automobiles entered, as a rule, made a showing creditable to the makers. But two serious breaks occurred among all the machines on the course, and some developed no troubles whatever—except in the matter of tires, and here none escaped trouble. It is only a few years since, in every important race, a large percentage of the machines were "down and out" before the winner crossed the tape. The inference is that a further advance has been made toward perfection in manufacture, and in this respect the American machines are admitted to have shown great improvement.

Of the foreign cars, ten were equipped with Michelin and two (German) with Continental tires, and all had removable rims. The five American cars had Diamond tires; the Thomas car had removable rims on the rear wheels, the Christie had four rims, and the other three were without this latest innovation. For the American team eleven tire stations were located around the course, while the foreigners carried spare tires (with rims) in the race.

Rain fell on the day before the race, leaving the road soft and conducive to skidding, which fact is held accountable in large part for the tire troubles experienced. For this reason leather anti-skid tires were used by most of the contestants, which is believed to have lessened the speed, besides which many of the metal studded bands peeled off the tires, making replacements necessary. At least six of the cars had bad tire troubles on the first round, seven cars had them on the second, and so on. Le Blon had to replace all four tires on the first round, losing 26 minutes thereby. Tracy lost 50 minutes all told with his tires. In the case of removable rims, tires were replaced much more promptly—in three or four minutes. And one French driver, who, as a measure of precaution, removed four seemingly good tires and put on new ones, required only four minutes for the work. Wagner, the winner, changed four rims.

The lessons of the race appear to be: (1) Cars are now made that, apart from the tires, can be depended upon to run from start to finish without failure. (2) Each car should carry its spare tires, instead of depending upon repair stations, which are not always accessible when trouble occurs. (3) Where speed is an object, removable rims are essential, on account of the time they save in making replacements. (4) However good American tires may be, the American made anti skid treads used at the Cup race failed to make a good showing.

It should be said, in justice to the American contingent, that the fastest time over the course was made by Tracy, in a Locomobile, with Diamond tires (without skid treads). He covered one lap in 26 minutes 21 seconds, or at the rate of 67.66 miles per hour.

SALE OF CRUDE RUBBER BY ANALYSIS.

ONE of the judges appointed in England for the Ceylon rubber exhibition was Mr. Spencer Brett, of Gow, Wilson & Stanton, Limited, rubber brokers of London. Interviewed by *The Times of Ceylon*, he said:

"I have been going very interestedly into the scientific aspects of rubber. I have a laboratory in the office and I got hold of quite the best man in London that I knew of, who has been going very fully into the question of the analysis of rubber. My firm thought it an extremely important branch of the business, and I have taken it up with the idea of its being useful to planters in regard to preparation. I have also been over some of the biggest mills of manufacturers, and I am quite of opinion that, sooner or later, analysis will enter much more largely into the sale of rubber. There is no doubt that the prices paid for crude rubber depend to a great extent on the contents of it, and, practically speaking, I think it is impossible always to determine what the contents are except by analysis. Of course there are indications, in certain cases, as to the presence of oils and resins. But that is exceptional. As a rule, you can't from the outward appearance of the sample accurately gage the proportion of the different contents."

NEW TRADE PUBLICATIONS.

EUREKA FIRE HOSE CO. (New York) lately have issued some attractive booklets in relation to what they term "the most valuable article in a fire department." Two which are especially interesting are "Fire Hose—A Study" [7¼″ × 8¼″. 16 pages] and "Hose Facts" [4¼″ × 9″. 10 pages. Both are well illustrated.

WESTERN RUBBER CO. (Goshen, Indiana) have brought out a catalogue of Mechanical Rubber Goods, in which prominence is given to their line of pump valves, a department to which they have given special attention for some years. [3¼″ × 6″. 12 pages.]

THE CANTON RUBBER CO. (Canton, Ohio), in their Catalogue D, describe an extensive line of fine Seamless Rubber Goods, Druggists' Sundries, and Molded Rubber Goods. [6″ × 9″. 31 pages.]

ALSO RECEIVED.

THE Mitzel Rubber Co., Carrolton, Ohio.=Net Price List of Water Bottles and Syringe Bags. 16 pages.

The Allen Bag and Specialty Co., New York.=Allen's Specialties for the Motor Car [including Tire Covers]. 8 pages.

Hygeia Nursing Bottle Co, Buffalo, New York.=Dr. Decker's Syringe Nozzles, 8 pages.

O. C. Pike, Akron, Ohio.=Net Price List of Rubber Specialties. 4 pages.

The Adams & Ford Co., Cleveland Ohio.=Everstick Invisible Rubber Foot Safety. 12 pages.

THE FRICTION TAPE INDUSTRY.

STATISTICS from reliable sources, though incomplete, indicate great activity in the manufacture of that class of rubber coated cottons which are designated as "friction" tape.

One well known house which makes a specialty of these goods reports orders for 12,000 pounds in one morning's mail, and an average monthly output of 50,000 pounds. One consumer uses 1400 pounds daily and the largest electrical manufacturing companies place contracts for 50 to 100 ton lots, cut to size, special coated.

Forty inch, 56 × 60, sheetings are commonly used for the standard commercial grades. Each pound of sheeting receives from 2 to 4 pounds of rubber and other compounds. These goods are formed into ½ pound rolls of varying widths and sold in constantly increasing quantities to the street railways, telephone companies, and electrical equipment contractors for making insulating joints. The United States government is a buyer in from 500 to 2000 pound lots under specifications of a most rigid character.

Most of the large cable companies make their own tapes, probably more from a desire to obtain a trustworthy product than from motives of economy, and theirs is a very large consumption of fine sheetings and drills. These are coated with high grade rubber compounds of extra light specific gravity, as the cable people estimate their cost by square measure instead of weight.

Probably 50 tons of tape is made up into very small parcels annually for the bicycle sundry trade, sold at prices ranging from 14 to 20 cents per pound, representing so large an amount of labor as compared to material that it has lately ceased to attract competition at the lower prices.

A good deal of tape was formerly exported to France, Germany, and Austria, but our French and German friends have imported American tape makers and the great bulk of the tape there consumed is now made on that side of the water with a protective duty against us averaging 10 cents per pound. England is still a fair field for the American tape maker, and good sales are continually made there. A large portion of these latter go to the smaller European countries, India, Africa, South America, and Australia, via London and Liverpool.

A conservative estimate of the daily output of the American tape factories (aside from that made and consumed by the cable plants) is 10,000 pounds per day.

THE COTTON DUCK SITUATION.

TO THE EDITOR OF THE INDIA RUBBER WORLD: There are some features in connection with the cotton duck situation, as it affects the rubber industry, which merits the serious consideration of the manufacturers in this branch, with a view to the possibility of bringing about some improvement. The price of cotton duck, on account of the great amount consumed in rubber factories, is of practically as much importance as the price of raw rubber, and this is something to which every manufacturer gives constant thought.

The terms on which rubber men now buy cotton duck are cash at ten days. But, if shipped from the South, it may not arrive for 30 or even 60 days, so that the consumer who buys for cash pays long in advance—something which is not true in regard to any other raw material used in the industry. Besides, the seller does not guarantee quality, and if the buyer of first grade duck finds that "seconds" have been substituted, he is without redress.

Duck is held at too high a price, considering the price of raw cotton. Six cents a yard is enough to cover manufacturing cost and profits. At this rate, with cotton at 10 cents a pound, duck should not sell above 17 cents a yard.

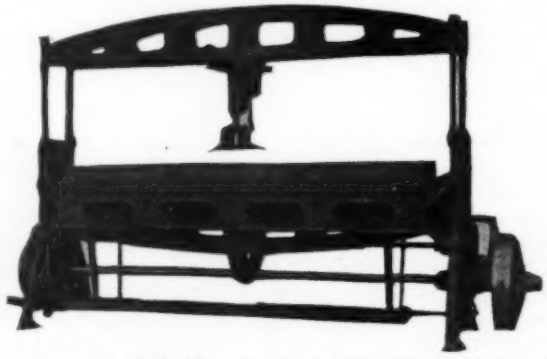
The trouble is that the cotton duck industry is practically controlled by a trust. There is but one source of supply for the American consumer. That source controls the distribution of the product, and has the power to discriminate against the small and in favor of the large consumer. If a new mill starts in the South the trust is soon found to control the agency for the sale of its production.

For all of which reasons, Mr. Editor, I am in favor of reducing the duty on imported duck, to enable the rubber trade to supply its wants in England or some other country until the home cotton trade becomes more disposed to give us a "square deal." AN AMERICAN.

Providence, Rhode Island, October 15 1906.

ELECTRIC DIEING-OUT MACHINE.

THE accompanying illustration relates to the new Parsons electric dieing-out machine. The use of dieing-out machines is very extensive in rubber factories, especially in the making of boots and shoes, and it is desirable that the utmost facility be afforded for ease of operation, and economical working. This machine is equipped with a traveling magnetic die holder, carrying a die of any weight from 1 to 100 pounds, over any part of the block, with the slightest pressure of the hand. It is always ready to lift or let go of the die by the simple movement of a switch. No danger to the operator is involved, as he does not handle the die while it is in operation. [Henry Parsons & Son, Marlboro, Massachusetts.]



THE sport of roller skating has again become so general that if all the skate rollers should be rubber tired—either pneumatic or hard rubber—it would make an appreciable increase in the demand for rubber. The elastic material is also used, on some skates, in the shape of cushions between the trucks and foot plate, to give greater comfort to the skater. It is small things like this, the aggregate of which is large, that cause the constant increase in the demand for rubber.

THE RUBBER TRADE IN TRENTON.

BY A RESIDENT CORRESPONDENT

THE Crescent Belting and Packing Co. and the Insulated Wire and Cable Co., of which Quartermaster General C. Edward Murray is general manager, have just completed a three-story brick addition, 60 by 75 feet. It is substantially constructed and has been equipped with the most modern machinery for the manufacture of insulated wire. The company has also just completed another addition of brick, one story high, 60 by 22 feet, to be used as a tinning shop for the insulated wire department. The first named addition will give the company a main building about 300 feet long and three stories high throughout. Two large wings connect with this and there are other minor buildings. A spur siding now connects the buildings directly with the main line of the New York division of the Pennsylvania railroad.

The Crescent Belting and Packing Co. is just sixteen years old and General Murray tells your correspondent that he is proud of the child of his early commercial experience. Commencing with a modest factory in 1890, the concern has grown steadily to its present commanding position among the rubber works of the city. At the beginning mechanical rubber goods only were manufactured. Then the insulated wire department was added and the Crescent Insulated Wire and Cable Co. organized as subsidiary to the other company. The present officers are John J. Miller, president; E. T. Phillips, vice president; General Murray, treasurer and manager.

Following the litigation involving the Trenton Rubber Reclaiming Works, in which Samuel Baron, a member of the company, applied for the appointment of a receiver, and in which the decision was against Baron, the latter has organized a new company for rubber reclaiming, which was incorporated in Trenton October 18. The new concern is called the Trenton Gutta-Percha and Rubber Separating Co. and is capitalized at $100,000. The incorporators are Samuel Baron, Manfred Naar, and Edgar L. Kerns. The company has elected Baron president, Naar secretary, and Kerns treasurer. Naar is a lawyer and justice of the peace, and Kerns conducts a large bottling establishment. The company has secured a building at the foot of Perrine avenue, Trenton, along the tracks of the Pennsylvania railroad where manufacturing will be begun as soon as the machinery is installed. Baron claims to have a secret process for separating scrap rubber.

The Luzerne Rubber Co. are just completing a brick addition to their plant at a cost of $5,000. The company began business about one year ago and are manufacturing hard rubber goods.

The damage done by the recent fire at the plant of the Dyson Rubber Co., on Paul avenue, is being repaired, and the works will soon be in operation again.

The Home Rubber Co. are having a great run at present on two lines of packing of which they make a specialty. These are the "N. B. O." black sheet packing, for steam and oil purposes, and the "O. I. M." high and low pressure packing.

The Trenton Rubber Manufacturing Co. have become quite a factor in the automobile inner tube business and are turning out a fine high grade tube.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

TWO companies have been incorporated lately by a firm of Akron attorneys, under titles which indicate that they are to be interested in rubber, but thus far the promoters are not disposed to make public any information regarding their objects. First was announced the Panama Crude Rubber Co., which was incorporated with a merely nominal capital, which has since been increased to $150,000. It is common report that the purpose of this company is to acquire control of rubber plantations in Mexico and Central America, and that options on a number of plantations have already been secured. The other company referred to bears the name The Independent Tire and Rubber Co., concerning which it is rumored that their intention is to utilize the products of the plantations controlled by the Panama Crude Rubber Co., and that ultimately the two companies may be brought under one control. The second company named, it is reported, will erect a factory either in Akron or at Youngstown, Ohio. The incorporators of the two companies, under the laws of Ohio, are George G. Allen, H. E. Andress, F. E. Whittemore, F. H. Waters, and E. A. Oviatt.

The B. F. Goodrich Co. have practically completed a new concrete six story building, and it is announced that another building of the same type is to be started at once and completed before the beginning of winter.

It is stated that, since the Vanderbilt Cup race, the Diamond Rubber Co. have booked orders for automobile tires to the amount of more than $1,000,000. Most of these orders are from automobile manufacturers, many of whom arrange for their year's supply at this season.

Mr. H. C. Corson, formerly vice president of The B. F. Goodrich Co., and still a shareholder in that company, has been making a visit to Akron. During the past five years he has been spending his summers at his home in Nova Scotia and his winters in Europe.

The plant hitherto occupied by the Faultless Rubber Co., in Akron, has been purchased by the E. A. Pflueger Co., manufacturers of fishing tackle, hardware, and hotel specialties.

The Faultless Rubber Co. have been busy of late arranging for homes in Ashland for 50 or more families of their employés who will go from Akron to that place, on account of the concentration of the company's business at Ashland.

RUBBER TREE SEEDS.—The well known Ceylon seedsmen, Messrs. J. P. William & Brothers, at Heneratgoda, issue new editions of their circulars: No. 30—*Hevea Brasiliensis;* No. 31—*Manihot glaziovii;* and No. 32—*Castilloa elastica.* Prices are given of seeds and stumps, and notes on recent success in shipping to distant points. They have supplied seeds of *Hevea*, for example, to the United States government for use in Hawaii.

GERMANY WANTS CHEWING GUM.—The bureau of manufactures of the United States department of commerce and labor announces: "A German confectioner would like to hear from American manufacturers of chewing gum, with a view to importing same, there being quite a demand for this article in Germany every year from tourists and residents."

NEWS OF THE AMERICAN RUBBER TRADE.

UNITED STATES RUBBER CO.—DIVIDENDS.

THE board of directors on October 4 declared a dividend of 2 per cent. upon the First preferred stock (including all the preferred outstanding), for the quarter beginning July 1, 1906, and a dividend of 1½ per cent. upon the Second preferred stock for the same quarter, from the net earnings of the company. The net earnings for the first six months of the fiscal year (September partially estimated) are $2,136,000, which includes dividends amounting to $413,640.82 received upon stock of the Rubber Goods Manufacturing Co. in this company's treasury. The dividends were payable October 31, to stockholders of record October 15. No action was taken in regard to a dividend on the common stock, although the financial public seems to have expected such a dividend.

RUBBER CEMENT FACTORY IN ST. LOUIS.

THE St. Louis Rubber Cement Co, have taken possession of and are now occupying the fireproof building at the corner of Main and Spruce streets, St. Louis, erected for their use. The firm started in a small way several years ago, making a specialty of supplying the St. Louis shoe factory trade with their product, and their business has now grown to good proportions. The rubber cement used locally was formerly obtained wholly from the East.

INSULATED WIRE WORKS FOR DETROIT.

THE Detroit Insulated Wire Co. have been incorporated under the laws of Michigan, with an authorized capital at present of $100,000. The president is Mr. E. E. Keller, of Pittsburgh, Pa. The vice president is Mr. J. H. Hunter, formerly of the National Cable and Wire Co., and also of Pittsburgh. Mr. Arthur Hartwell, some time sales manager of the Sterling Varnish Co., and later general manager of the Sterling Varnish Co., has been elected secretary and treasurer. The company have acquired six acres of land on the line of the Pere Marquette railroad, on which they are putting up a three story building of concrete and brick construction, to be devoted entirely to the manufacture of rubber covered wire. When the machinery, which is all new, has been installed, the capacity of the plant will be about 500,000 feet per day. The company hope to be in operation by the middle of November.

MR. HOWLETT INCORPORATES.

THE Rochester Rubber Co. (Rochester, N. Y.) have been incorporated under the laws of New York, with $25,000 capital. Incorporators and directors: Frank C. Howlett and J. H. Glisman, of Syracuse; Charles W. Barnes, New York city. Mr. Howlett is president and treasurer of the company, as he is also of the Syracuse Rubber Co., the incorporation of which was reported last month. The two companies will conduct a general rubber business, as Mr. Howlett has done hitherto. There will be no rubber business under the name of F. C. Howlett in the future.

MR. KOHMESCHER RETIRES.

THE partnership which had existed for 20 years between J. H. Kohmescher and Eugene C. Schaefer, under the style of J. H. Kohmescher & Co., in the Cincinnati retail rubber trade, ended on September 29, by the withdrawal of Mr. Kohmescher. The business will be continued at the same location by The Schaefer Rubber Co. Mr. Kohmescher entered the service of the late firm, Bart & Hickcox, the pioneers of the India-rubber trade in Cincinnati, February 2, 1864, and remained with them until 1886, when the partnership just closed was formed. They opened "The Little Rubber Store" at No. 161 Main street, under the motto "The Best of Rubber Goods Are Not Any Too Good." In November, 1891, the rubber store was moved to No. 120 East Fourth street, where the business has been carried on until now. William E. Schaefer was admitted to the firm 10 years ago.

DEATH OF THE HON. RATCLIFFE HICKS.

THE body of the late Hon. Ratcliffe Hicks, of Connecticut, who died at Interlaken, Switzerland, on September 10 last, arrived at New York on the *Auguste Victoria*, on October 6. Funeral services were held on October 9 at Tolland, Conn., his native town, and where his summer home has been for years.

Ratcliffe Hicks was born October 3, 1843, being descended from Thomas Hicks, who came from England in 1644 and settled at Scituate, Mass., founding a family many members of which have won distinction. The father of Ratcliffe Hicks was a merchant in Providence, R. I., and later in New York city. The son was graduated from Brown University in the class of 1864. Being admitted to the bar, he won success in his profession, while his interest in public matters led to his election for a number of terms to the Connecticut legislature, of which he proved an able and influential member. He was also at various times city attorney of Meriden and attorney for the county of New Haven.

In 1882 Mr. Hicks became connected with the rubber business. He was a son in law of the late Jared H. Canfield, who had, a few years ago established at Bridgeport, Conn., the business which, after his death, in 1883, was incorporated as the Canfield Rubber Co. Mr. Hicks was elected president of the corporation, holding this position until within the present year, when he disposed of his holdings in the business. During this period he saw the company grow from small beginnings until its sales amounted to $1,000,000 or more per year, thus demonstrating his capacity as a business man no less than in other relations in life.

Mr. Hicks did much for his native town of Tolland. It is the site of the Ratcliffe Hicks Industrial and Educational School, toward the endowment of which he contributed liberally. Mr. Hicks is survived by an unmarried daughter.

END OF A SUIT IN THE TIRE FIELD.

THE amicable settlement is reported of the suits of the Pope Manufacturing Co. against the Rubber Goods Manufacturing Co., in the New York supreme court, the first of which was instituted in October, 1903. Under date of November 8, 1899, the American Bicycle Co. sold to the Rubber Goods Manufacturing Co. three rubber tire plants—the Hartford, the Indianapolis, and the Peoria—the consideration involving an agreement by the American Bicycle Co. to purchase at least 90 per cent of its requirements in tires

from the Rubber Goods company, for five years, while the latter agreed to pay an annual rebate of $200,000 on such business for the same period. The basis of the first suit referred to above was the $200,000 rebate alleged to have been due on November 1, 1902, and not paid. The American Bicycle Co. meanwhile had failed, and been succeeded by the Pope Manufacturing Co., and the Rubber Goods company were advised by counsel that the contract with the American Bicycle Co. had ceased to be valid, and was not transferable. The matter was allowed to go to the courts, therefore, and a year later a second suit was brought, for the rebate claimed for the year ending November 1, 1903.

RUBBER SHOE SEASON EXTENDED.

THE announcement is made by the United States Rubber Co. that the opening of next season will be deferred until March 1, instead of occurring on January 1, as was expected. The announcement has been well received in the trade, particularly as this postponement carries with it the extension of the guarantee given in the company's contracts so as to cover goods in the dealers' hands up to February 28. It was natural, when the guarantee terminated on December 31, that dealers should be a little careful about carrying too large a stock over into the new year, with the uncertainty as to what the new year would disclose in the matter of prices. Now that the guarantee carries until the end of February, which is very close to the end of the rubber season, dealers can lay in their stocks with a better feeling of confidence.

STAFF OF MORGAN & WRIGHT.

THE corporation Morgan & Wright, whose new rubber factory at Detroit, Michigan, is now in operation in the various departments, is incorporated in Michigan with $1,800,000 capital. The directors are: Charles H. Dale, Lester Leland, John J. Watson, Jr., Charles A. Hunter, Charles J. Butler, Arthur I. Philp, and Frank W. Eddy. The officers are: Charles J. Butler, president and general manager; A. I. Philp, secretary; Nicholas B. Feltes, treasurer; John Carlson, assistant treasurer; Herbert Bowen, counsel. G. A. Burnham is factory manager; A. A. Templeton, superintendent; William McMahon, assistant superintendent; G. A. Reeves, general foreman mechanical departments; T. H. Henderson, general foreman mill, calender, and compound rooms; William Shearer, master mechanic; F. O. Smith, purchasing agent. The selling department is in charge of A. I. Philp. The men in charge of the manufacturing departments are: Charles Measure, automobile tires; H. L. McLaren, vehicle tires; M. E. Mason, bicycle tires and accessories; W. M. Gunlock, horseshoe pads and rubber heels; D. J. Norbury, mechanical goods; G. W. Seiberling, hard rubber specialties.

HIGHER PRICES FOR MECHANICALS.

A NUMBER of leading manufacturers of mechanical rubber goods have withdrawn all prices, notifying their patrons that new prices will be furnished on application. The reason given is the continued increase in the price of materials. One circular states that cotton duck has advanced 40 per cent. within two years past, and 20 per cent. within the past year, and other materials in like proportion. The Peerless Rubber Manufacturing Co. announce that their advance in prices will be as small as is consistent with the cost of materials, "ranging from 5 to 8 per cent."

MR. FARRINGTON MAKES A CHANGE.

MR. CHARLES E. FARRINGTON has severed his connection with the Massachusetts Chemical Co. and the Walpole Rubber Works, and opened an office in Boston as consulting engineer, his specialty being transmission problems and chemical engineering as it relates to the rubber manufacture. He will also devote special attention to rubber reclaiming problems. Mr. Farrington has had unusual experience and opportunities for the study of rubber factory methods and electrical plants, both in this country and in Europe. He has also contributed very many articles to scientific reviews which have attracted much attention. As an inventor several of his insulating compounds have been most successful.

C. E. FARRINGTON.

TRADE NEWS NOTES.

MR. HARRY GREENLEE has accepted a position as general sales agent of the American Belting Co. (Youngstown, Ohio). He was formerly in the cost department of The Republic Rubber Co., of the city named.

=Mr. Charles Hardin has accepted a position as New York manager for The Republic Rubber Co., taking the place of Mr. Willis A. Darling who is now in business for himself, selling mechanical rubber goods.

=Mr. Emil Grossman has retired from the position of general manager of the Continental Caoutchouc Co., the American branch of the Continental company of Germany, to devote his time to the affairs of the Motor Car Equipment Co., the National Sales Corporation, and the Royal Battery Co., all of New York, and of all of which he is president.

=A representative of the J. P. Devine Co. (Buffalo, New York) started recently for the Guayule rubber producing district of Mexico, in the interest of the vacuum drying apparatus marketed by that company. Elsewhere in this issue will be found references to the successful employment of this system on rubber plantations in the Far East.

=O. C. Pike, No. 128 West South street, Akron, Ohio, is conducting a business in jobbing druggists' sundries and other rubber specialties, his stock being derived from leading manufacturers.

=Charles Niedner (Malden, Massachusetts) has applied for a building permit for a three story brick addition to his fire hose factory, to be ready by January 1, to be 60 × 60 feet.

=The British Insulated and Helsby Cables Co., Limited, have declared an interim dividend on the ordinary shares at the rate of 8 per cent. for the half year ended June 30, the rate being the same as last year.

=W. T. Glover & Co., Limited, have issued £80,000 in 5 per cent. second mortgage debenture stock, at 95 per cent. being part of an authorized issue of £100,000.

=The National India Rubber Co. (Bristol, R. I.) will make quite an extensive exhibit of its carriage cloths, including ducks and drills, both bright and dull finish, and leather and pebble grain embossing, at the Convention of the National Carriage Builders' Association, which will be held in Atlanta, Ga., October 23-27.

=The Boston Automobile Dealers' Association, Inc., announce their fifth annual automobile and power boat show, Mechanics Building and Horticultural Hall, Boston, March 9-16 (inclusive) 1907. Application for space should be addressed to Chester I. Campbell, general manager, No. 5 Park square, Boston.

=The yacht *Arrow*, one of the fastest in the world, built for Charles R. Flint and now owned by E. F. Whitney, was the subject of newspaper mention in New York early in the month. Her propeller becoming entangled in some floating lumber in the East river, the yacht was slightly damaged and came near sinking.

=In a New Jersey court a verdict for $1000 was rendered in the suit of Daniel Cane, who sued for damages for the loss of two fingers while at work in the factory of the Voorhees Rubber Manufacturing Co.

=The Bristol Co. (Waterbury, Connecticut), manufacturers of Bristol recording thermometers, have opened a branch office in Chicago, at No. 753 Monadnock building, to enable them to supply more promptly their growing trade in the West.

=Mr. E. S. Benson, manager of the New York branch of the Hartford Rubber Co., has resigned to go to Indianapolis, to join the staff of J. D. Anderson, president of the G & J Tire Co. He has been succeeded by E. S. Roe, lately of the Hartford company's uptown branch in New York.

=The Healy Leather Tire Co., No. 88 Gold street, New York, have established a selling branch at No. 1906 Broadway, in order to be nearer the automobile district.

=All Cadillac cars for 1907 will be equipped with the Hartford universal rim, for either Hartford clincher or Dunlop tires.

=The Aladdin Rubber Co. have recently added extensively to the capacity of their rubber reclaiming plant at Barberton, Ohio. The company reclaim by a non acid process which has produced the most satisfactory results. The company's offices are located now in the Hamilton building, Akron, Ohio.

=Hastings Hose Reel Co. (Hastings, Michigan) are making a very satisfactory line of hose reels, varying in size and price to meet any demand.

=The Republic Rubber Co., (Youngstown, Ohio), are reported recently to have received a large order from the Panama canal commission for air brake hose and other rubber supplies for use on the railway crossing the isthmus.

=Mr. W. J. Oby, formerly general manager of the Canton Rubber Co. (Canton, Ohio), is now practicing law in Cleveland. His successor is Mr. W. J. Ellis, for many years with The B. F. Goodrich Co.

=Mr. M. Traub, of Behr & Co., Singapore, was a recent caller at the office of THE INDIA RUBBER WORLD. He expressed himself as believing that Singapore would shortly become a great center for crude rubber, and his errand to the United States is to get in touch with rubber manufacturers and know their wants in the way of crude rubber, in order that he may supply them direct.

=Mr. Fred D. Zeigler has succeeded W. C. Peters as manager of the Goshen Rubber Works (Goshen, Indiana). The other officers now are H. C. Zeigler, president; H. R. Brackin, vice president; C. W. Kinnan, secretary; Jerry Hayes, treasurer.

=The regular quarterly dividend of 2 per cent. of the Hood Rubber Co. was payable on October 1.

=A dividend of 2 per cent. on the preferred stock of the Manufactured Rubber Co. was payable on October 10.

=The Durham Rubber Co., Limited (Bowmanville, Ontario) have opened a branch for the sale of their mechanical rubber goods at Winnipeg, with Mr. B. C. Clarke as manager. The present address is No. 45 Notre Dame avenue, East.

=The Dowswell Manufacturing Co., Limited (Hamilton, Ontario), makers of wringer rolls, will erect a warehouse at a cost of $8000.

Mr. William J. Gorham, president of the Gorham Rubber Co. (San Francisco) sailed from New York on October 9 for a visit to Europe.

=The Rubber and Celluloid Harness Trimming Co (Newark, New Jersey) are interested in a rubber plantation in Honduras from which they are receiving more or less cultivated rubber. They find that the Central rubber from that region is excellent for their rubber specialties.

=The specialty factory of the A. W. Faber Co., at Newark, New Jersey, has lately received substantial enlargement through the construction of a large three story brick building. This company, by the way, not only manufacture pencil tips, erasers, and rubber specialties for the great Faber business in the United States, but they also make all of the rubber goods for the German, French, and English Faber factories, and in addition supply the Egyptian government and the government of India with the special rubber bands made under government specifications and stamped with the broad arrow.

=The P. F. U. Rubber Co. (Durango, Colorado) are still at work extracting rubber and carrying on extensive experiments, which will go to show whether the "rabbit weed" can be successfully cultivated. The first rubber that they got out cost them considerably over $1 a pound and they have reduced that cost now to 80 cents. The rubber samples which they show are valued roughly at the rate of $1 a pound.

=The Dunlop Tire and Rubber Goods Co. (Toronto), who advertise extensively throughout Canada, have adopted in all their advertising matter the "simplified spelling" to which so much attention has been attracted lately by President Roosevelt's advocacy of it.

=Mr. Paul Lacroix, of Paris, France, a personal representative of the Michelins, is now visiting the United States.

=The Michelin Products Selling Co., Inc. (New York), have opened a pneumatic tire agency at No. 3804 Olive street, St. Louis, Mr. H. L. Doyle being the manager.

=Mr. E. D. Winans has resigned his position as general manager of the Michelin Products Selling Co., Inc. (Nos. 31-33 West Thirty-first street, New York). Mr. Winans is in ill health and will go to California for a rest. Mr. Edward W. Elverson, treasurer of the Michelin Products company, has taken control of its affairs as general manager, succeeding Mr. Winans.

=Mr. Charles Motz, of Akron, Ohio, is at work on a new solid tire, which he expects shortly to put on the market.

=The Elastro Manufacturing Co., of Hartford, September 15, under Connecticut laws; Capital, $50,000. To manufacture a resilient compound, to serve as a substitute for rubber. Incorporators: H. B. Philbrick, Charles H. Cooley, Edward S. Young, L. S. Lewis, and C. H. Cooley, Jr., all of Hartford.

=The Los Soldados Rubber Co., which, by the way, is a rubber plantation that is a close corporation, and situated in the state of Vera Cruz, Mexico, have recently been using one of Christy's coagulating machines, and find that it does excellent work. The only difficulty in operating it that has been found is not due to the machine itself but to the lack of a gasoline motor, the present type being "mozo" power, which, however, is all right for experimental work.

=By the time this item is in type Mr. William J. Gorham, of the Gorham Rubber Co., San Francisco, will have recovered from his Atlantic seasickness and have landed on the shores of Germany. His errand over there is the collection of some $35,000 worth of insurance which a certain German insurance company refuses to pay. The consensus of opinion in the rubber trade is that Mr. Gorham will not only get the insurance money, but anything else that he really wants in Germany.

=Michelin Products Selling Co., Inc. (New York), invited a number of their friends in the trade to visit their tent near the grand stand at the Vanderbilt Cup races. They had arranged for 100 cots for use during the preceding night, and refreshments were served before the race started on Saturday morning.

=The Pará Recovery Co. inform THE INDIA RUBBER WORLD that a very large American rubber manufacturer has just placed an order with them for 500 tons of their Mexican Yucatan rubber, shipments to be made ten tons per week.

=An early touch of winter was experienced over a wide area on October 11, snow falling at Buffalo and other points in upper New York State, at Cleveland, Ohio, and at various places in Pennsylvania and Michigan. Heavy snow was general throughout western Ontario. This does not prove, of course, that there is to be more snow than usual this winter, but it encouraged the rubber shoe dealers none the less.

=Electric Rubber Manufacturing Co. (Rutherford, New Jersey) are marketing what they term the "M. T." triple strength inner tubes for automobile tires, which take their name from a special compounding ingredient, "M. T."

=The merit of "Atmoid" for use in the manufacture of high grade acid tubing of rubber is emphasized by the makers, The Rubber Chemical Co., Limited, of Birmingham, England.

=Bids were opened on October 19 for supplying the New York fire department with an unusually large quantity of hose. The Manhattan Rubber Manufacturing Co. were the successful bidders for supplying 50,000 feet of 2½ inch hose —one of the largest orders ever placed by the department. The Continental Rubber Works (Erie, Pa.) were the successful bidders on 2500 feet 1½ inch hose; 10,000 feet 3 inch hose; and 1100 feet 3½ inch hose.

=The Schaefer Rubber Co. was incorporated September 26, 1906, under Ohio laws; capital, $50,000. Incorporators: Eugene and William E. Schaefer, Jacob H. Yost, and W. T. Porter. To continue the business of J. H. Kohmescher & Co., retail rubber goods, Cincinnati.

=The Niagara Rubber Co., at Lockport, N. Y., was incorporated October 23, 1906, under New York laws; capital, $250,000. Directors: H. Walters, A. M. Cheney, and J. B. Ross, of Jamestown, N. Y.

=The four related wholesale and retail rubber stores organized and managed by Mr. Isaac Crocker continue to do a flourishing business—the Lowell Rubber Co., at Lowell, Mass.; Lawrence Rubber Co., Lawrence, Mass.; Crocker Rubber Co., Brockton, Mass.; and Hope Rubber Co., Providence, R. I.

=The Canadian Consolidated Rubber Co., of which Mayor Geo. W. Stephens is president, and D. Lorne McGibbon manager, has purchased the Maple Leaf Rubber Co., of Port Valhousie, Ontario, for $350,000.00.

=Dr. Durand Woodman, technical chemist, of New York, has returned from a vacation spent in sailing and fishing and incidentally in a study of the water supply of Cooperstown, N. Y., with reference to its future possibilities of contamination.

=Mr. H. J. Koehler, of the automobile trade in Newark, N. J., reports that the "Buick" motor car entered by his house at the Atlantic City races was run to and from that city (about 150 miles) and all through the races without the tires requiring any attention. They were the Goodyear Quick Detachable tires.

=National Metal Back Rubber Tiling Co., was incorporated October 2, 1906, under Maine laws, with $500,000 capital authorized. The incorporators are M. W. Baldwin, of Portland, Me. (president and clerk), C. E. Eaton (treasurer), J. J. Herman. Mr. Baldwin is the manager of the Corporation Trust Co,, from which it is inferred that the first board is composed of "dummy" directors.

=Messrs. V. Lespinas, G. Lespinas, and G. Ogier, of the important tire factory of Michelin et Cie. (Clermont Ferrand), are now on a visit to the United States, for the purpose of studying the tire industry and trade here.

=Dow Tire Co. was incorporated October 22, 1906, under New York laws, with $1,500,000 capital stated, and headquarters at Phœnicia, Ulster county, N. Y. Directors: Sidney B. Perry, James Gillin, Jr., and William L. Morris, all of New York city.

=Mr. G. C. Mandleberg of the firm of J. Mandleberg & Co., Limited (Manchester, England), was a recent visitor to the United States and also to Canada, where the company have a large factory.

=The American Chicle Co., in addition to the regular monthly dividend of 1 per cent. on the common stock, payable on November 20, will disburse on that date an extra dividend of 1 per cent.

=The Rubber Products Co. filed articles of incorporation October 11, 1906, under Ohio laws, with $100,000 capital authorized. Incorporators: Harvey Musser, George C. Kohler, Arthur S. Mottinger, William H. Gillie, and J. A. Kohler, of Akron and Barberton, Ohio.

=Mr. Joseph H. Gilbert who for some years has been connected in an official capacity with the Firestone Tire and Rubber Co. (Akron, Ohio) has been selected to succeed Mr. Emil Grossman, as general and sales manager of the Continental Caoutchouc Co., the American agency for Continental tires.

=The Beacon Falls Rubber Shoe Co. have recently made an important addition to their boot ticket.

=Mr. Willis A. Darling, formerly with the Republic Rubber Co., has connected himself with the Continental Rubber Works (Erie, Pa.), as manager of the mechanical goods department for New York.

=The plant formerly owned by the Madeira Rubber Co. (Hyde Park, Mass.) has been purchased by the New England Rubber Manufacturing Co., who will continue to make the lines manufactured by the old company and add molded goods.

=A reclaiming plant is to be erected in connection with the Elkhart Rubber Works (Elkhart, Indiana), to be operated, it is reported, by a new company to be organized subsidiary to the Elkhart Rubber Works.

=Mr. J. Stewart Smith, who for three years has been in charge of the metropolitan district for the Continental Caoutchouc Co. has become Eastern sales manager for the Electric Rubber Co. (Rutherford, N. J.) makers of the Panther tires, and will shortly open New York headquarters and salesrooms.

=The Trenton Gutta-Percha and Rubber Separating Co. filed articles of incorporation in New Jersey October 18, 1906, signed by Manfred Naar, Edgar L. Kerns, and Samuel Baron. Capital, $100,000; registered office, No. 17 East State street, Trenton.

=Victor Auto Tire Repair Co., of Passaic, N. J., was incorporated October 18, 1906; capital, $50,000. Incorporators: Victor E. Butler, Allan M. Chalmers, Cornelius Post, and James Maitland.

=The thirty-fourth annual meeting of the Carriage Builders' National Association of the United States, held at Atlanta, Georgia, on October 23–25, had in connection with it, as usual, an exhibition of carriage materials and parts. This was held at the Piedmont Fair grounds, and embraced a number of exhibits from the rubber trade, embracing carriage and automobile tires, carriage cloth, rubber mats and other like accessories.

=Notice has been given at the factories of the Woonsocket Rubber Co. and the National India Rubber Co. of a reduction of the working day from 10 to 9 hours, without reduction of pay. Also at the factories of the Boston Rubber Shoe Co. and the American Rubber Co. The question of a like reduction at the other shoe factories of the United States Rubber Co. has been under consideration.

=The annual meeting of the shareholders of the Pennsylvania Rubber Co. was held at Jeannette, Pa., on October 17, when Herbert DuPuy, F. A. Wilcox, and H. Wilfred DuPuy were reëlected directors. They thereupon elected the following officers: Herbert DuPuy, president; F. A. Wilcox, vice president; H. Wilfred DuPuy, treasurer and general manager; George W. Shiveley, secretary; Wilmer Dunbar, general superintendent. The report showed that the company had enjoyed a very prosperous year, and orders and contract already booked give promise of still greater business during the coming season.

=The Goodyear Rubber Insulating Company, with offices and works in Jersey City, filed a certificate of dissolution of the corporation in the office of the Secretary of State at Trenton, October 29. The company was incorporated January 3, 1898, with a capital of $5000, divided into 100 shares of a par value of $50 each. The incorporators were Albert C. Wall, of South Orange, N. J., Frederick S. Minott, of Mt. Kisco, N. Y., and Theodore Blake, of New Haven, Conn. Minott was president, and Blake secretary and treasurer.

"NEW ENGLAND'S BIGGEST RUBBER STORE."

ON the 15th of the month past, The Enterprise Rubber Co. took possession of their fine, new quarters at No. 110 Federal street, Boston. The store when completed will be just what President Barker of the company characterizes it in his announcements, "The Biggest Rubber Store in New England", while in arrangement and furnishing, it is the ambition of the head of the company to make it the best. All told, the store has some 26,000 square feet of floor space. This is divided into a fine, light basement, where mechanical rubber goods will be stored and where a large general repair department is to be placed; the first floor, where are the executive offices, sample tables and in the rear racks for the storing of goods; then the second and third and part of the fourth floors, which will be used at present for the carrying of a complete stock of the various lines handled. It is the first floor, however, that attracts the instant attention of the visitor—finished in quarter oak, with half balconies on either side, the windows being the largest single plates of glass in Boston and with the executive offices, sample rooms and stock tables arranged in the most practical manner it strikes one at once as being a distinct business proposition, and yet at the same time having a degree of elegance not often found in rubber stores. Of course, there are freight elevators, passenger elevators, telephone trunk lines, electric lights and every modern convenience that enterprise can suggest. The lines to be carried, in addition to the Candee rubbers and the general line of rubber clothing and mackintoshes which the Enterprise have always handled, will be a full line of the goods manufactured by The Peerless Rubber Manufacturing Co., for which The Enterprise Rubber Co. are now the exclusive New England agents, a complete line of druggists' sundries, and of automobile and cycle tires. The addition to the selling force are Mr. A. P. Speare, formerly with The Republic Rubber Co., Mr. L. Hinds, formerly with Prescott Brothers, of Boston, and Mr. Gordon Hall, the well known mill supply man.

RUBBER RECLAIMERS ORGANIZE.

A MEETING of reclaimers and manufacturers who buy scrap rubber was held on October 19 at No. 42 Broadway, New York, attended by twenty-two members of the trade. Mr. F. H. Appleton presided and Mr. W. C. Coleman acted as secretary. An executive committee was named, consisting of Messrs. J. K. Mitchell, of the Philadelphia Rubber works; W. T. Rodenbach, of the United States Rubber Co.; Arthur W. Clapp, of the E. H. Clapp Rubber Co.; R. A. Lowenthal, of the U. S. Rubber Reclaiming Works; and J.

A. Lambert, of the Eureka Rubber Manufacturing Co., of Trenton, N. J. The intention is to maintain a social organization rather to attempt to control prices.

BOSTON WOVEN HOSE AND RUBBER CO.

THE figures following are a statement of condition of this company on September 1, 1906, and for the corresponding period 1905:

ASSETS.

	1906.	1905.
Cash	$ 188,128.74	$ 103,610.89
Cash advanced for goods not yet received	28,419.01	53,661.38
Accounts receivable	499,996.32	442.915.90
Merchandise (Raw, in process, and finished)	501,582 11	496,083.52
Machinery and tools	244,848.00	263,298.00
Land and buildings	205,150.00	186,700.00
Furniture	1.00	1.00
Patents	1.00	1.00
Total	$1,668,126.18	$1,546.271 69

LIABILITIES.

	1906.	1905.
Capital stock	$1,200,000.00	$1,200,000.00
Loans	None.	64.500.00
Accounts payable	10,604.72	17,997.50
Surplus	457,521.46	263.774.19
Total	$ 1,668,126.18	$1,546,271.69

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES.	Common.			Preferred.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Sept. 22	18,270	56½	53¾	4.500	111¼	109½
Week ending Sept. 29	23.330	58	54	2,350	110⅞	110
Week ending Oct. 6	59 620	59½	48¼	2,900	111	108¾
Week ending Oct. 13	8,000	51⅛	49⅛	3,400	110⅝	110
Week ending Oct. 20	8,130	50¾	47⅛	1,110	109	105
Week ending Oct. 29						

SECOND PREFERRED.

Week ending—Sept. 22.	Sept. 29.	Oct. 6.	Oct. 13.	Oct. 20.	Oct. 27.
Sales..... 400	100	800	300	10	
High 80⅞	79½	80	79½	78½	
Low..... 80	79½	79½	79½	78½	

PERSONAL MENTION.

MR. LOUIS H. AYMÉ, for three years United States consul at Pará, has been appointed consul general at Lisbon, Portugal. His successor in the Pará consulate is Mr. George H. Pickerill.

=Mr. H. N. Towner, of Towner & Co., rubber goods jobbers, Memphis, Tennessee, has been elected president of the executive committee of the Memphis Industrial League.

=Mr. Ernest E. Buckleton, secretary and general manager of the Northwestern Rubber Co., Limited (Liverpool), has been on a visit recently to the United States.

=The sales department and branch managers throughout Canada, of the Canadian Rubber Co., of Montreal, Limited, recently presented Mr. J. M. S. Carroll—as a mark of esteem on the occasion of his recent marriage—with a massive solid silver tea and coffee dinner service, each piece engraved with the recipient's monogram.

=The corner stone of the Colt Memorial High School, presented to the town of Bristol, Rhode Island, by Colonel Samuel P. Colt, in memory of his mother, Theodora DeWolf Colt, was laid on October 16, with Masonic ceremonies. Among those participating were Governor Utter, Judge Le Baron B. Colt (a brother of Colonel Colt), President Faunce of Brown University, and Principal Charles F. Cape, of the state normal school. The new building will be an ornament to the town, and the estimated cost is $250,000.

=On October 20 Miss Elsie Webster, daughter of Mr. and Mrs. George Milton Allerton, of Naugatuck, Connecticut, was married to Mr. Ralph Bristol.

TRIBUTE TO MR. GEORGE F. HODGMAN.

AT a meeting of the Rubber Sundries Manufacturers' Association, held at the Hotel Astor, in New York, on October 18, 1906, the following tribute to the late Mr. Hodgman was adopted;

WHEREAS, Mr. George F. Hodgman, president of this Association, departed this life on September 28, 1906;

WHEREAS, The success of the Rubber Sundries Manufacturers' Association was largely due to his untiring energy, sound judgment, and deep interest in our Association, as presiding officer and a member of the executive committee; and,

WHEREAS, His genial character and personality has endeared him in the affection and admiration of all who had the great pleasure to know him in his long and honorable life, and none more than the members of this Association; be it,

Resolved, That the members of the Rubber Sundries Manufacturers' Association through the death of our late president, Mr. George F. Hodgman, has suffered an irreparable loss; and further,

Resolved, That in commemoration of the esteem and love in which he was held by the members of this Association, and as evidence of their sorrow over his death and of their sympathy with his stricken family, this preamble and resolution be spread upon the minutes of this Association, and that a copy be forwarded to the family of our deceased associate and beloved friend.

E. E. HUBER, Secretary.

RUBBER PLANTATIONS INJURED.

NEWS comes from Nicaragua of a cyclone and tidal wave that seems to have done much damage. To begin with, the little city of Bluefields is practically in ruins, and it is rumored that Pearl Lagoon is wiped out. Further than this the banana plantations have been destroyed, and report is that a part of the rubber growing on the Manhattan and Cukra plantations has been destroyed. Just how badly the rubber is damaged no one knows as yet. Mr. Gordon Waldron, of the Cukra plantation, is now on his way to Nicaragua and others of the planters who were north are also returning home. Whatever the damage, the impulse of the plantation companies is at once to replant and go ahead with their proposition, as the trees that were already coming into bearing had proved the planting proposition to be a good one.

The Bluefields *American* (October 15) reports the complete destruction of the town of Pearl Lagoon, and adds: "In the near vicinity of the town, the rubber and banana plantations, with some of the buildings, were also laid flat by the unsparing elements. Among the plantations destroyed are the big Cukra (bananas and rubber), Manhattan (rubber) the rubber and banana plantations of Mr. McCullough, Captain J. A. Peterson, and, in fact, all those of that district." There were probably 450,000 well developed rubber trees.

WM. JAS. & HY. THOMPSON report [October 13]:

Pará.—Judging by the large increase in American deliveries during the past three months a good business has been done in the States, but the heavy stocks held in Europe have prevented any material advance in prices from this cause. From now up to the end of next March we should see increasing supplies, and unless a very active demand crops up we do not think higher prices will be justified.

THE TRADE IN SAN FRANCISCO.

BY A RESIDENT CORRESPONDENT.

THE offices and salesrooms of the Goodyear Rubber Co. are now located in the new building which the San Francisco branch of the company has built at the old site, No. 573 Market, in the heart of the burned district, which is the same location occupied by the firm for 35 years. President R. H. Pease, of the company is very sanguine as to the outcome of business prosperity of the city. "There never was a time" he said, "When the demand for goods of all kinds was so active on the Pacific coast and especially in San Francisco, when prices were so firm, and when cash payments were so frequent as the present. The new life which the great work of rebuilding has instilled in the people has placed business and the commercial supremacy of the city on a firmer basis than ever. We are now carrying a complete line the same as before, and we intend soon to have a permanent building erected. Our temporary quarters are 60×155 feet in dimensions with two floors and a basement. Our new factory on Spear street is fitted up with a complete line of modern machinery and manufacturing goods the same as before the fire."

The Phoenix Rubber Co. is a new firm which has sprung up since the fire, the principals having been formerly connected with the Boston Woven Hose and Rubber Co. The proprietors of the new firm are Austin Kanzee and James D. Ralph and they have permanently located in a new building, constructed for their exclusive purposes, at Nos. 115–117 Beale street. The building is not quite completed, but will soon be in working order with a factory for valves, gaskets, moulded rubber goods, and with a repair plant for auto tires. They are handling the Republic Rubber Co.'s line of automobile and vehicle tires, belting, etc. They are also handling the general lines of the Continental Rubber Works, and the Chicago Belting Co.'s leather belting.

The Boston Woven Hose and Rubber Co., who were burned out in April, are now located at No. 48 Stewart street, San Francisco. Mr. Joseph V. Selby continues as their Pacific coast manager.

The Gorham Rubber Co. has its new factory and salesrooms at No. 105 Fremont street in complete running order. A number of men are employed in the tire department, the repair department is going full blast, and the factory has all of the work that it can handle. This firm will proceed soon to erect a new and permanent building on Fremont street. It will be five stories with basement, all 60 × 137 feet. Mr. W. J. Gorham is now in Germany, and his purpose in being there is to see what he can do with one of the insurance companies about collecting his losses.

The George E. Dow Pumping Engine Co., No. 179 First street, contemplate entering into the field for rubber supplies although they have not yet decided upon what lines they will handle.

The new offices of the Revere Rubber Co., at 530 Mission street, although in the midst of the ruins are very comfortably fitted inside and are in a very convenient and accessible location.

Barton, Squires & Byrne, a new firm which was formed only a short time before the fire, the members having formerly been connected with the Pacific Coast Rubber Co., are crowded in their new offices at No. 27 Commercial street. "Business in San Francisco is rushing," said Mr. Squires, "and we have put on two new salesmen this month." This firm is having a new brick building erected for their use, on Howard street. This firm has a factory out on Hampshire street where it is turning out ring and spiral packings.

The Fisk Rubber Co. has permanently located in its new quarters at No. 1036 Golden Gate avenue, where they have a nicely appointed store and complete stock of the various manufacturers whom they represent. R. F. Thompson has taken the position of manager for the San Francisco branch and he took charge a month ago. He was formerly connected with The B. F. Goodrich Co. Mr. G. E. Johnson, the Pacific coast manager of The Fisk Rubber Co. is now in Seattle, Washington, where he is superintending the opening of the firm's new branch in that city at No. 719 East Pike street. This makes three branches which the firm has on the Coast, the other being in Los Angeles.

Otto Richter, treasurer of the Pacific Coast Rubber Co., which takes in the Washington Rubber Co., of Seattle and Tacoma, made a trip to San Francisco recently for the purpose of looking into the matter of erecting a new factory in this city.

The American Rubber Manufacturing Co., Mr. Oliver manager, whose place of business on Spear street was completely destroyed by the fire, and who are now located in new quarters at Emeryville, across the bay, have fitted up a new factory and are doing a flourishing business.

The Hon. L. D. Apsley, of the Apsley Rubber Co., was in San Francisco lately. He expressed himself as being surprised at the remarkable progress which the business houses had made toward getting reëstablished.

Other recent visitors to the trade in San Francisco were Messrs. F. B. McIlroy, of the McIlroy Belting and Hose Co. (Chicago) and James F. Giles, representing the American Hard Rubber Co.

M. Byrne, factory superintendent of the Goodyear Rubber Co., has invented a rubber cushion heel which has received favorable attention.

A NEW TIRE COMPANY IN PROSPECT.

JOHN MACMILLAN, of Milwaukee, and Charles G. Fawkes have withdrawn from the Milwaukee Rubber Works Co., and will establish a new factory for the manufacture of the "Fawkes Airless" tires and other articles, patents for which they control. While the "Fawkes" tire as manufactured hitherto has given general satisfaction, yet they claim to have improvements which will greatly increase its popularity and insure a larger demand. Mr. MacMillan is a capable, energetic and successful man with a wide experience in business and well posted in rubber, while Mr. Fawkes is an excellent mechanic and has accomplished in the "Fawkes" tire what so many so called experts thought impossible.

They are considering a number of propositions for locating, and will accept the proposition of the city offering them the most inducements. They are at present in Milwaukee, where they will remain until they decide upon a permanent location.

THE Stoughton Rubber Co. are making a very substantial addition to their factory.

REVIEW OF THE CRUDE RUBBER MARKET.

THE market has continued, during the past month, in a stable condition. It has been almost without fluctuation, but with a gradually upward tendency for the Pará sorts, closing both higher than at the beginning of the month and with more firmness. Buying appears more active of late, which would have the effect of stiffening prices, and the increase of arrivals at Pará since July 1 over last season's figures has not been maintained. Stocks of some grades have been very low, particularly of coarse Pará, the advance in which has been more marked than in the case of the fine grades.

There are fewer changes to record in Africans and Centrals, the demand for which has been only moderate during the month. The tendency has been upward, however, as shown in the results of the Antwerp sale on October 23—an average advance of about 2½ cents a pound.

Arrivals at Pará of all grades (including Caucho) since the beginning of the crop year have been:

	1903.	1904.	1905.	1906.
July.....*tons*	1280	1250	1450	1840
August.....	1230	1260	1300	1690
September.....	2010	1780	2200	1930
October.....	2440	2820	3580	*a* 0000
Total.....	6960	7110	8530	0000

[*a*—To October 27, 1906.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on October 29—this date:

PARA.	November 1, '05.	October 1, '06.	October 29.
Islands, fine, new.....	118@119	119@120	119@120
Islands, fine, old.....none here		none here	none here
Upriver, fine, new.....	121@122	123@124	124@125
Upriver, fine, old.....	132@133	126@127	128@129
Islands, coarse, new.....	68@ 69	67@ 68	72@ 73
Islands, coarse, old.....none here		none here	none here
Upriver, coarse, new.....	89@ 90	@ 92	96@ 97
Upriver, coarse, old.....none here		none here	none here
Caucho (Peruvian) sheet....	70@ 71	75@ 76	77@ 78
Caucho (Peruvian) ball.....	85@ 86	91@ 92	95@ 96
Ceylon (Plantation) fine sheet.....		142@143	139@140

AFRICAN.		CENTRALS.	
Sierra Leone, 1st qual.	104 @105	Esmeralda, sausage..	91@ 92
Massai, red.....	104 @105	Guayaquil, strip.....	75@ 76
Benguella.....	79 @ 80	Nicaragua, scrap.....	89@ 90
Cameroon ball.....	77 @ 78	Panama, slab.....	67@ 68
Accra flake.....	21½@ 22	Mexican, scrap.....	89@ 91
Lopori ball, prime...	115 @116	Mexican, slab.....	67@ 68
Lopori strip, prime..	107 @108	Mangabeira, sheet.....	66@ 67
Madagascar, pinky..	91 @ 92	Guayule.....	40@42½
Ikelemba.....	116 @117	EAST INDIAN.	
Soudan niggers.....	93 @ 94	Assam.....	93@ 94
		Borneo.....	39@ 49

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	5$900	Upriver, fine.....	6$900
Islands, coarse.....	3$000	Upriver, coarse.....	4$800

Exchange, $15\frac{9}{16}d$.

Last Manáos advices:

Upriver, fine.....	7$000	Upriver, coarse.....	4$500

Exchange, $15\frac{7}{16}d$.

NEW YORK RUBBER PRICES FOR JULY (NEW RUBBER).

	1906.	1905.	1904.
Upriver, fine.....	1.22 @ 1.24	1.28 @ 1.31	1 12 @ 1.19
Upriver, coarse...	.89 @ .91	.90 @ .95	.87 @ .91
Islands, fine.....	1.18 @ 1.20	1.25 @ 1.28	1.09 @ 1.15
Islands, coarse.....	.64 @ .65	.68 @ .71	.63 @ .66
Cametá.....	.69 @ .71	.71 @ .76	.64 @ .66

NEW YORK RUBBER PRICES FOR AUGUST (NEW RUBBER).

	1906.	1905.	1904.
Upriver, fine..	1.22 @ 1.24	1.27 @ 1.29	1.18 @ 1.21
Upriver, coarse....	.90 @ .92	.90 @ .92	.90 @ .91
Islands, fine.....	1.18 @ 1.20	1.25 @ 1.27	1.14 @ 1.16
Islands, coarse.....	.65 @ .67	.68 @ .70	.65 @ .67
Cametá.....	.68 @ .70	.71 @ .73	.65 @ .66

NEW YORK PRICES FOR SEPTEMBER (NEW RUBBER).

	1906.	1905.	1904.
Upriver fine.....	$1 22@$1.24	$1.29@$1.32	$1.09@$1.21
Upriver coarse.....	.92@ .94	.91@ .94	.85@ .91
Islands fine.....	1.18@ 1.20	1.26@ 1.29	1.07@ 1.16
Islands coarse	.66@ .69	.69@ .72	.59@ .67
Cametá.....	.68@ .70	.71@ .74	.60@ .66

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total. 1906.	Total. 1905.	Total. 1904.
Stocks, August 31.....*tons*	87	6 =	93	316	93
Arrivals, September.....	677	316 =	993	513	691
Aggregating.....	764	322 =	1086	829	784
Deliveries, September.....	629	301 =	930	512	740
Stocks, September 30...	135	21 =	156	317	44

	PARÁ.			ENGLAND.		
	1906.	1905.	1904.	1906.	1905.	1904.
Stocks, August 31. .....*tons*	450	275	360	700	380	200
Arrivals, September.....	1930	2055	1741	635	652	593
Aggregating.....	2380	2330	2101	1335	1032	793
Deliveries, September.....	1930	1853	1728	850	725	575
Stocks, September 30...	1450	477	373	485	307	218

	1906.	1905.	1904.
a World's visible supply, September 30.*tons*	1885	1967	1463
Pará receipts, July 1 to September 30.....	4795	4535	3961
Pará Receipts of Caucho, same dates.....	630	385	349
Afloat from Pará to United States, Sept. 30.	264	307	303
Afloat from Pará to Europe, September 30.	530	499	525

a—Not including holdings in Continental Europe.

VISIBLE SUPPLIES AT THE END OF SEPTEMBER, REPORTED FROM ANOTHER SOURCE.

STOCKS AT—	Pará.	Caucho.	Total.
Pará.....*tons*	470	20	= 490
Liverpool.....	490	50	= 540
Continent.....	250	20	= 270
New York.....	290	50	= 340
Afloat Pará-Europe.....	530	50	= 580
" Pará-America.....	270	10	= 280
" England-America.....	50	—	= 50
Total.....	2350	200	=2550

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots in cents per pound—are somewhat higher throughout the list:

Old Rubber Boots and Shoes - Domestic.....	9¼	@	9⅜
Do - Foreign.....	8⅛	@	8⅜
Pneumatic Bicycle Tires.....	7½	@	7¾
Automobile Tires.....	10	@	10⅜
Solid Rubber Wagon and Carriage Tires.....	8¾	@	8⅞
White Trimmed Rubber.....	11½	@	11¾
Heavy Black Rubber.....	5½	@	5⅝
Air Brake Hose.....	4¾	@	5
Fire and Large Hose.....	3⅜	@	3¾
Garden Hose.....	2½	@	2¾
Matting.....	1½	@	1⅝

In regard to the financial situation, Albert B. Beers (broker in India-rubber, No. 68 William street, New York) reports:

"During October the money market has continued strong, and the demand for paper has been very spasmodic, mostly from out-of-town banks, at rates running from 6 to 7 per cent."

Rubber Receipts at Manaos.

DURING September and three months of the crop season for three years [courtesy of Messrs. Scholz & Co.]:

FROM—	SEPTEMBER. 1906.	1905.	1904.	JULY-SEPTEMBER. 1906.	1905.	1904.
Rio Purús-Acre ... *tons*	202	511	403	987	1167	909
Rio Madeira	370	316	193	904	786	672
Rio Juruá	173	222	190	328	316	215
Rio Javary—Iquitos	392	444	68	541	564	281
Rio Solimões	54	106	32	116	210	42
Rio Negro	4	1	3	4	6	3
Total	1195	1600	889	2880	3049	2122
Caucho	238	212	40	475	398	218
Total	1433	1812	929	3355	3447	2340

Bordeaux.

At the inscription sale on October 16 the quantity of rubber offered was 122,744 kilos, of which 53,690 was sold. Soudan niggers brought 8.27½ @ 10.52½ francs; Madagascar Majunga, 10.25; Mexican scraps, 9.85; Ecuador scraps, 10 @ 10.60; Ecuador strips, 9.35 @ 10 francs.

Antwerp.

AT the inscription sale on October 23, at which about 419 tons of rubber were offered, the prices realized showed an average advance over estimations of 25 centimes per kilo, or about 2¼ cents per pound.

ANTWERP RUBBER STATISTICS FOR AUGUST.

DETAILS.	1906.	1905.	1904.	1903.	1902.
Stocks, July 31. *kilos*	531,441	819,559	872,746	377,527	689,772
Arrivals in August	578,122	509,389	244,704	347,062	321,192
Congo sorts	438,005	375,263	221,665	322,136	294,073
Other sorts	140,117	134,126	23,039	24,926	27,119
Aggregating	1,109,563	1,328,948	1,117,450	724,589	1,010,964
Sales in August	422,696	770,746	514,955	404,603	254,563
Stocks, August 31	686,867	558,202	602,495	319,986	756,401
Arrivals since Jan. 1	3,933,727	3,719,673	3,709,621	3,326,394	3,558,836
Congo sorts	2,998,843	2,911,293	3,069,256	2,971,328	3,395,549
Other sorts	934,884	808,380	640,365	355,066	163,287
Sales since Jan. 1	3,982,047	3,702,832	3,718,026	3,664,513	3,217,144

RUBBER ARRIVALS AT ANTWERP.

OCT. 2.—By the *Albertville*, from the Congo:

Bunge & Co	(Générale Africaine) *kilos*	87,000	
Do	(Grand Lacs)	700	
Do	(Société A B I R)	22 000	
Do	(Comité Katanga)	3,500	
Do	(Cie. du Kasai)	58.000	
Comptoir Commercial Congolais		9,000	
M. S. Cols	(Alima)	5,000	
Société Coloniale Anversoise		9,000	
Do	(Lulonga)	1,500	
Do	(Lomami)	6,500	
Do		2,000	
Société Générale de Commerce	(Alimaienne)	7,500	
L. & W. Van de Velde		6,000	217,700

Ceylon (Plantation) Rubber Exports, 1906.

DETAILS—BY WEEKS.

	POUNDS.		POUNDS.
January 1 to Aug 13	177,691	Total, 1906	222,201
Week ending Aug. 20	11,840	Same dates, 1905	84,408
Week ending Aug. 27	5,896	Same dates, 1904	45,666
Week ending Sept. 3	9.975	Same dates, 1903	28,821
Week ending Sept. 10	4,681		
Week ending Sept. 17	12,118		

DESTINATION.

Great Britain	155,006	Australia	2,772
United States	50,877	France	3,307
Germany	9,467	Belgium	772

London.

LONDON RUBBER SALES.

OCTOBER 5.—Plantation grown Pará in good demand. Small sales have been made privately at 5*s.* 7*d.* @ 5*s.* 7¼*d.* for fine biscuits and sheet and 5*s.* 7¼*d*, @ 5*s* 7¾*d.* for fine crepê. Block inquired for. [Price of fine Pará, 5*s.* 1*d.*] No auctions to-day.

OCTOBER 12.—The market has been quiet but steady during the fortnight. Quotations are rather higher, but not much business has been done. Hard fine spot and near has sold at 5*s.* 1½*d.* @ 5*s.* 2*d.* Fair sales of fine Islands at 5*s.* 1*d.* Sales of old Bolivian up to 5*s.* 3*d.*, according to age. Fine Mollendo at 5*s.* At to-day's auction medium grades in good supply and most sorts selling well at full prices. Assams in better demand and No. 1 sold at 3*s.* 9¼*d.* @ 10*d.* Mattogrosso mangabeira sheet 3*s.* 1¼*d.* @ 3*s.* 3*d.* Mozambique fine clean small ball (red) 4*s.* 8¾*d.* @ 4*s.* 9¼*d.* Madagascor pinky up to 3*s.* 7½*d.*

Plantation.—At to-day's auction 407 packages Ceylon and Straits rubber, and about 232 sold. The weight amounted to about 23 tons. A fine parcel of crepê from Bukit Rajah estate realized up to 5*s.* 8*d.* [=$1.37⅛] per pound. Scrap sold up to 4*s.* 6½*d.*

Liverpool.

WILLIAM WRIGHT & Co. report [October 1]:

Fine Para.—The market has been active, but at gradually declining prices, except for old Bolivian. At the close, prices show a tendency to further lose, but a slight reduction on present values would, we think, lead to a very active trade demand. We do not anticipate, even with increased receipts, any "slump" in values; the requirements of the trade both in Europe and America are sufficient to prevent this. On the other hand, it seems to us there is not much chance of a heavy advance. American manufacturers have this season adopted a wise policy in not rushing prices when covering requirements. In our manufacturers may accept about 5 shillings [=$1.21⅛] as a sound basis at which to purchase.

EDMUND SCHLÜTER & Co. report [September 30]:

Fine Pará has ruled quiet and steady during the first three weeks of September, but towards the close of the month prices became irregular and somewhat easier owing to the decline in the Brazil exchange. Owing to the delay of arrivals at Manáos the receipts during September remained below the estimate, while deliveries in the trade show an increase in excess of the total crop increase since July 1. The position has, therefore, for the time being, gained in strength, and sellers are reluctant to contract forward deliveries at a discount.

WORLD'S VISIBLE SUPPLY OF PARÁ, SEPTEMBER 30.

	1906.	1905.	1904.	1903.	1902.
Tons	2274	2302	1719	1870	2759
Prices, hard fine	5/1	5/6	4/9½	4/ 8	3/1¼

LIVERPOOL STOCKS OF AFRICAN RUBBER, SEPTEMBER 30.

1906 314	1903 217	1900 725
1905 266	1902 524	1899 580
1904 402	1901 722	1898 381

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

September 25.—By the steamer *Hildebrand* from Manaos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
General Rubber Co	191,600	41,000	80,900	2,500=	316,000
Poel & Arnold	72,800	20,500	71,900	2,700=	167,900
N. Y. Commercial Co	40,800	9,400	4,700	2,200=	57,100
A. T. Morse & Co	34.300	5.700	8,500	9,300=	57,900
Edmund Reeks & Co	13,000	6,500	19,000	=	39,000
Hagemeyer & Brunn	17,700	1,800	5,400	=	24,800
Neale & Co	700	700	12,600	=	14,000
C. P. dos Santos	4,000	600	2,600	=	7,200
Total	374,900	86,200	206,100	16,700=	683,900

October 4.—By the steamer *Basil*, from Manáos and Pará:

General Rubber Co	105,400	16,500	67,400	.....=	189,300
Poel & Arnold	58,800	11,100	73,500	8,200=	151,600
N. Y. Commercial Co.	64,200	5,400	13,700	7,700=	91,000
Neale & Co	3,200	.....	5,600	.....=	59,200
Edmund Reeks & Co.	14,600	6,000	11,400	.....=	32,000
C. P. dos Santos	22,500	4,300	1,500	300=	28,600
A. T. Morse & Co	6,800	700	3,200	.....=	10,700
Hagemeyer & Brunn	6,700	.....	2,500	.....=	9,200
Total	282,200	4,400	249,200	16,200=	571,600

October 15.—By the steamer *Maranhense*, from Manáos and Pará:

Poel & Arnold	125,100	27,800	105,600	24,300=	282,800
General Rubber Co	147,100	18 400	59,900	2,600=	228,000
N. Y. Commercial Co.	106,300	21,600	11,200	900=	170,000
A. T. Morse & Co	30,500	1,500	51,800	15,600=	99,400
Edmund Reeks & Co.	32,600	5,800	14,200	.....=	52,600
Neale & Co	26,700	2,100	23,200	.....=	52,000
Hagemeyer & Brunn	41,400	2,900	18,200	.....=	62,500
Lawrence Johnson & Co	20,000	.....	2,200	.....=	22,200
Czarnikow, McDougal Co	8,500	....	.....	.....=	8,500
Total	538.200	80,100	316,300	43,400=	978,000

October 25.—By the steamer *Hubert* from Manáos and Pará:

A. T. Morse & Co	194,600	20,300	71,500	400=	286,800
N. Y. Commercial Co.	98,300	19,100	19,900	21,000=	158,300
General Rubber Co	89,000	18,600	28,000	....=	135,600
Poel & Arnold	88,900	18,400	19,100	7,400=	133,800
C. P. dos Santos	79,000	12,100	11,900	.....=	103,000
Neale & Co	11,800	300	43,200	.....=	55,300
Edmund Reeks & Co.	26,400	7,900	8.500	.... =	42,800
Hagemeyer & Brunn	19,100	1,000	2,400	.....=	22,500
Meyer & Busweiler	5,500	.....	1,300	.....=	6,800
Total	612,600	97,700	205,800	28,800=	944,900

NOTE.—The *Dominic* is due on November 4, with 460 tons of Pará rubber.

PARA RUBBER VIA EUROPE.

SEPT. 25.—By the *Georgic*=Liverpool: (POUNDS.)
New York Commercial Co (Fine) 29,000

OCT. 1.—By the *Umbria*=Liverpool:
General Rubber Co. (Fide) 20,000

OCT. 1.—By the *Panama*—Mollendo:
Boston & Bolivia Co. (Fine) 5,000
W. R. Grace & Co. (Caucho) 19,000 24,000

OCT. 3.—By the *Oceanic*=Liverpool:
Poel & Arnold (Fine) 22,500

OCT. 3.—By the *Caronia*=Liverpool:
New York Commercial Co. (Fine) 22,500

OCT. 6.—By the *Campania*=Liverpool:
New York Commercial Co. (Fine) 11,500
C. P. dos Santos (Fine) 2,500 14 000

OCT. 10.—By the *Armenian* Liverpool:
Poel & Arnold (Fine) 22,500
Poel & Arnold (Coarse) 17,500 40,000

OCT. 12.—By the *Teutonic*=Liverpool:
New York Commercial Co. (Fine) 11,500
A. T. Morse & Co. (Fine) 11,000 22.500

OCT. 12—By the *Patricia*=Hamburg:
New York Commercial Co (Fine) 15,000
A. T. Morse & Co (Coarse) 13,500 28,500

OCT. 15.—By the *Etruria*=Liverpool:
Robinson & Stiles (Fine) 93,000

OCT. 17.—By the *Carmania*=Liverpool:
New York Commercial Co. (Fine) 20,000

OCT. 18.—By the *Baltic*=Liverpool:
A. T. Morse & Co (Fine) 22,500

OCT. 20.—By the *Lucania*=Liverpool:
New York Commercial Co (Fine) 34,020

OTHER ARRIVALS AT NEW YORK

CENTRALS.

SEPT. 24.—By the *Goyaz*=Pernambuco: (POUNDS.)
Lawrence Johnson & Co 6,000
American Commerce Co 2,500 8,500

SEPT. 25.—By the *Georgic*=Liverpool:
George A. Alden & Co 15,000
General Rubber Co 8,000 23,000

SEPT. 26.—By the *Trent*=Colombia:
Isaac Brandon & Bros 1,000
D. A. DeLima & Co. 1,000
Mecke & Co 1,000
Kunhardt & Co 1,000
A. Held 1,000
Suzarte & Whitney 500
Punderford & Co 500
Escobar & Gorgorza 500 6,500

SEPT. 26.—By the *Advance*=Colon:
Feltman Estate 13,200
Mann & Emdon 5,000
Roldan & Van Sickle 3,500
A. Santos & Co 2,500
Pablo, Calvet & Co 1,700
Dumarest Bros. & Co 1,300
G. Amsinck & Co. 1,100
Lawrence Johnson & Co 700
A. M. Capen Sons 700
Isaac Kubie & Co 500 30,200

SEPT. 28.—By the *Seneca*=Tampico:
New York Commercial Co 29,000
Isaac Kubie & Co 1,000 30,000

CENTRALS—Continued.

SEPT. 29.—By the *El Norte*=Galveston:
Continental Mexican Co 63,000

OCT. 1.—By the *Panama*=Colon:
Feltman Estate 9,700
New York Commercial Co 5,900
Piza, Nephews & Co 1,500
Mann & Emdon 700
W. H. Coolidge 600
Bartling & DeLeon 600 19,000

OCT. 3.—By the *Mesaba*—London:
George A. Alden & Co 17,500

OCT. 3.—By the *Sarnia*=Colombia:
Isaac Brandon & Bros 3,500
Fould & Co 2,500
J. A. Pauli & Co 2,500
Graham, Hinkley & Co 1,000
American Trading Co 500 10,000

OCT. 3.—By the *Bayamo*—Tampico:
Edward Maurer 27,000
New York Commercial Co 20,000 47,000

OCT. 6.—By the *Merida*—Mexico:
Harburger & Stack 3,000
H. Marquardt & Co. 1,000
E. Steiger & Co 1,000
Issac Kubie & Co 500
Ferd. Bundlehas 500
American Trading Co 500 6,500

OCT. 6—By the *Allianca*=Colon:
Mann & Emdon 3,000
G. Amsinck & Co 2,500
Dumarest Bros. & Co 2,000
Meyer Hecht 1,500 9,000

OCT. 6.—By *El Cid*=New Orleans:
A. T. Morse & Co 3,500
A. N. Rotholz 3,000
Manhattan Rubber Mfg. Co 2,000
Eggers & Heinlein 1,000 9,500

OCT. 8.—By the *La Bretagne*—Havre:
George A. Alden & Co 5,000

OCT. 9.—By the *Prins August Willem*=Colombia:
D. A. De Lima & Co 1,500
J. A. Pauli & Co 1,500
A. A. Lindo & Co 1,000
Isaac Brandon & Bros 500
A. Held 500 5,000

OCT. 11.—By the *Venetia*=Colon:
Feltman Estate 23,000
George A. Alden & Co. 1,000
G. Amsinck & Co 500 24 500

OCT 11.—By the *Orinoco*=Greytown, etc.:
E. B. Strout 6,000
A. Held 2,500
G. Amsinck & Co 1,500
Punderford & Co 500
Silva Bussenus & Co 500
Roldan & Van Sickle 500
American Trading Co 500 12,000

OCT. 11.—By the *Finance*—Colon:
New York Commercial Co 12,500
Feltman Estate 6,000
G. Amsinck & Co 6,000
America Trading Co 4,000
Roldan & Van Sickle 3,500
A. Santos & Co. 3,000
Isaac Brandon & Bros 2,000
Piza, Nephews Co 1,500
Lawrence Johnson & Co 1,500
E. B Strout 1,000
W. R. Grace & Co 1,000
Dumarest Bros. & Co 1,500 43,500

CENTRALS—Continued.

OCT. 12.—By the *Canniag*=Bahia:
J. H. Rossback & Bros 36,000
American Commerce Co 22,000 58,000

OCT. 12.—By *El Sud*—New Orleans:
Manhattan Rubber Manufacturing Co. 2,000
Continental Mexican Co 2,000 4,000

OCT. 13.—By the *Esperanza*=Mexico:
H. Marquardt & Co 2,500
E. Steiger & Co 1,500
Harburger & Stack 1,500
Graham, Hinkley & Co 500
Fred Probst & Co 500 6,500

OCT. 15.—By the *Etruria*=Liverpool:
General Rubber Co 9,000

OCT. 15.—By the *Yucatan*=Tampico:
New York Commercial Co 6 500

OCT. 15.—By the *Colon*=Colon:
Feltman Estate 5,000
Andean Trading Co 700 5,700

OCT. 17.—By the *Carmania*=Liverpool:
General Rubber Co 13,500

OCT. 17.—By the *El Mar*=Galveston:
Continental Mexican Co. 27,000

OCT. 18.—By the *Siberia*=Colombia:
Columbian Trading Co. 4,000
A. & S. Henry Co 3,000
A. Saunders & Co. 3,000
Seanz & Co 3,000
American Trading Co. 1,000
H. Augenar 1,000
Isaac Brandon & Bros 1,500 16,500

OCT. 20.—By the *Matanzas*=Tampico:
New York Commercial Co 22,500
Edward Maurer 25,000 47,500

AFRICANS.

SEPT. 24.—By the *Amerika*=Hamburg: (POUNDS.)
A. T. Morse & Co. 6,000

SEPT. 24.—By *La Gascoyne*=Huvre:
A. T. Morse & Co 7,000

SEPT. 25.—By the *Georgic*=Liverpool:
George A. Alden & Co. 65,000
Poel & Arnold 3,000 68 000

SEPT. 25.—By the *Missouri*=Antwerp:
A. T. Morse & Co. 9,000

SEPT. 27.—By the *Majestic*=Liverpool:
Rubber Trading Co 15.000
A. T. Morse & Co. 13.500
George A. Alden & Co. 10,000
Henry A. Gould Co 5,000
Wallace L. Gough 4,500
Earle Brothers 3,000 51,000

SEPT. 27.—By the *Pennsylvania*=Hamburg:
A. T. Morse & Co. 31,000
George A. Alden & Co. 25 000 56,000

OCT. 1—By the *Zmbria*=Liverpool:
George A. Alden & Co. 75,000
General Rubber Co. 34,000 109,000

OCT. 2.—By the *Zeeland*=Antwerp:
A. T. Morse & Co. 7,000

OCT. 2.—By the *Cevic*=Liverpool:
Poel & Arnold. 11.500
A. T. Morse & Co. 3,000
A. W. Brunn & Co. 1,500 16,000

AFRICANS—Continued.

OCT. 3.—By the *Caronia*=Liverpool:

George A. Alden & Co.	85,000	
General Rubber Co.	11,500	
Robinson & Stiles	2,500	99,000

OCT. 3.—By the *Oceanic*=Liverpool:

Poel & Arnold		9,000

OCT. 5.—By the *Batavia*=Hamburg:

Poel & Arnold	18,000	
A. T. Morse & Co.	17,000	
George A. Alden & Co.	20,000	55,000

OCT. 6.—By the *Campania*=Liverpool:

Wallace & Gough	17,000	
Raw Products Co.	7,000	
A. T. Morse & Co.	5,000	
George A. Alden & Co.	2,000	31,000

OCT. 6.—By the *Lorraine*=Havre:

George A. Alden & Co.		7,000

OCT. 8.—By *La Bretagne*=Havre:

George A. Alden & Co.	35,000	
Poel & Arnold	7,500	42,000

OCT. 9.—By the *Kroonland*—Antwerp:

Poel & Arnold	75,000	
Robinson & Stiles	13,500	
A. T. Morse & Co.	13,500	
Raw Products Co.	10,000	
Rubber Trading Co	9,000	121,000

OCT. 9.—By the *Minneapolis*=London.

A. T. Morse & Co.	5,500	
Poel & Arnold	5,500	11,000

OCT. 9.—By the *Noordam*—Rotterdam:

Robinson & Stiles		9,000

OCT. 10—By the *Armenian*—Liverpool:

George A. Alden & Co.	45,000	
A. T. Morse & Co	22,000	67,008

OCT. 12.—By the *Patricia*=Hamburg:

George A. Alden & Co.	15,000	
W. L. Gough	50,00	20,000

OCT. 21.—By the *Teutonic*=Liverpool:

George A. Alden & Co	27,000	
Rubber Trading Co.	4,500	
A. T. Morse & Co	3,500	
Raw Products Co	2,000	36,000

OCT. 15—By the *Etruria*=Liverpool:

General Rubber Co.	15,000	
George A. Alden & Co.	6,000	
A. W. Brunn & Co.	3,500	24,500

OCT. 15.—By the *Peninsular*=Lisbon:

General Rubber Co.	90,000	
Poel & Arnold	45,000	135,000

AFRICANS—Continued.

OCT. 18.—By the *Vaderland*—Antwerp:

George A. Alden & Co.	100,000	
Poel & Arnold	100,000	
A. T. Morse & Co.	85,000	
Robinson & Stiles	9,000	
General Rubber Co.	10,000	304,000

OCT. 17.—By the *Carmania*=Liverpool:

George A. Alden & Co.	35,000	
General Rubber Co.	18,000	53,2000

OCT. 18.—By the *Baltic*=Liverpool:

Livesey & Co.	11,500	
George A. Alden	5,000	
A. T. Morse & Co	2,500	15,000

OCT. 19.—By the *Patricia*=Hamburg:

A. T. Morse & Co	30,000	
George A. Alden & Co.	25,000	55,000

EAST INDIAN.

POUNDS.

SEPT. 24.—By the *Minnetonka*=London:

A. T. Morse & Co	7,500	
George A. Alden & Co.	3,500	
Wallace L. Gough	3,000	14,000

SEPT. 27—By the *Pennsylvania*—Hamburg:

A. T. Morse & Co	7,000	
George A. Alden & Co.	4,500	11,500

OCT. 1.—By the *Bechuana* Colombo=:

A. T. Morse & Co		5,500

OCT. 3.—By the *Mesaba*—London:

A. T. Morse & Co.	11,500	
George A. Alden & Co.	4,000	
Robinson & Stiles	4,000	19,500

OCT. 5.—By the *St. Egbert*=Singapore:

George A. Alden & Co.		11,500

OCT. 8.—By the *Schuylkill*=Singapore:

George A. Alden & Co.	15,000	
A. T. Morse & Co.	11,000	26,000

OCT. 12—By the *Patricia*=Hamburg:

A. T. Morse & Co.	5,000	
Wallace L. Gough	4,500	9,500

OCT. 16.—By the *Koranna*=Colombo:

A. T. Morse & Co		7,000

OCT. 16.—By the *Minnehaha*—London:

General Rubber Co.	20,000	
George A. Alden & Co	5,000	25,000

OCT. 18.—By the *Baltic*=Liverpool:

Poel & Arnold		7,000

GUTTA-JELUTONG.

SEPT. 24—By the *Ryndam*=Rotterdam:

George A. Alden & Co.		25,000

OCT. 3.—By the *Lowther Castle*—Singapore:

Heubler & Co.	430,000	
George A. Alden & Co.	130,000	
J. W. Phyfe & Co.	100,000	
William Tappenbach	110,000	
D. A. Shaw & Co.	55,000	815,000

OCT. 5.—By the *St. Egbert*=Singapore:

George A. Alden & Co.	150,000	
William Tappenbach.	110,000	
Heubler & Co.	56,000	
L. Littlejohn & Co	56,000	372,000

OCT. 8.—By the *Schuylkill*=Singapore:

Heubler & Co.	45,000	
George A. Alden & Co.	65,000	
Poel & Arnold	55,000	165,000

GUTTA-PERCHA AND BALATA.

POUNDS.

SEPT. 27.—By the *Pennsylvania*=Hamburg:

Robert Soltau Co.		7,000

OCT. 8.—By the *Schuylkill*=Singapore:

Haebler & Co		45,000

OCT. 19.—By the *Patricia*=Hamburg:

Robert Soltau Co.		7,000

BALATA.

OCT. 5—By the *Korana*=Demerara:

George A. Alden & Co.		9,500

OCT. 9.—By the *Talisman*=Demerara:

Frame & Co	11,500	
A. T. Morse & Co.	1,500	

OCT. 11.—By the *Masoa*=Demarara:

George A. Alden & Co.	11,500	
Middleton & Co.	10,000	21,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—SEPTEMBER.

Imports:	Pounds.	Value.
India-rubber	4,396,678	$3,421,959
Gutta-percha	17,064	4,139
Gutta jelutong (Pontianak)	1,959,609	67,361
Total	6,372,351	$3,493,459
Exports:		
India-rubber	34,912	$ 32,370
Reclaimed rubber	7,759	1,207
Rubber Scrap Imported	1,509,563	$ 119,860

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.

MONTHS.	IMPORTS	EXPORTS	NET IMPORTS.
August, 1906	4,073,379	279,179	3,794,200
January-July	38,210,198	2,079,678	36,130,520
Eight months, 1906	42,283,577	2,358,857	39,924,720
Eight months, 1905	44,679,510	2,052,652	42,626,858
Eight months, 1904	41,630,173	2,220,818	39,409,305

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
August, 1906	4,625,264	2,266,096	2,359,168
January-July	39,059,104	21,530,096	17,529,008
Eight months, 1906	43,684,368	23,796,102	19,888,176
Eight months, 1905	42,288,960	23,112,440	19,176,520
Eight months, 1904	38,298,848	22,141,062	16,157,786

GERMANY.

MONTHS	IMPORTS	EXPORTS.	NET IMPORTS.
August, 1906	2,490,840	1,052,260	1,438,580
January-July	23,006,500	6,511,780	16,494,720
Eight months, 1906	25,497,340	7,564,040	17,933,300
Eight months, 1905	29,686,140	10,169,720	19,516,420
Eight months, 1904	23,755,600	6,587,680	17,167,920

BELGIUM †

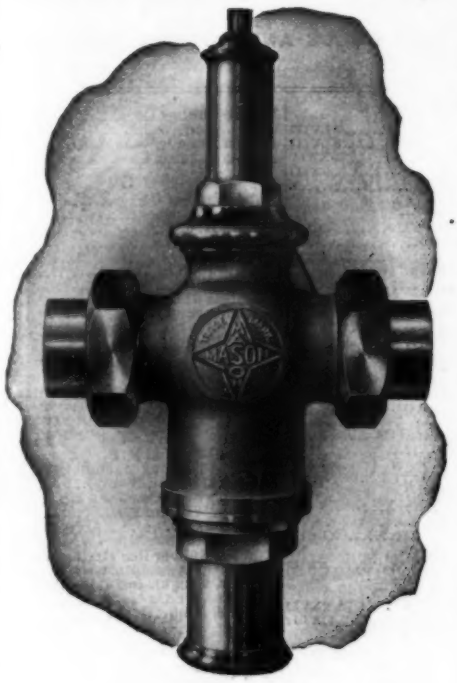
MONTHS.	IMPORTS	EXPORTS	‡NET IMPORTS.
August, 1906	1,251,351	1,564,499	313,148
January-July	12,666,927	7,880,391	4,786,536
Eight months, 1906	13,918,278	9,444,890	4,473,388
Eight months, 1905	11,765,630	8,256,674	3,508,956
Eight months, 1904	11,699,384	9,727,955	1,971,429

FRANCE.*

MONTHS.	IMPORTS.	EXPORTS	NET IMPORTS.
August, 1906	1,710,720	1,656,600	54,120
January-July	19,702,540	10,229,340	9,473,200
Eight months, 1906	21,413,260	11,885,940	9,527,320
Eight months, 1905	18,173,540	10,788,580	7,384,960
Eight months, 1904	13,976,820	7,431,160	6,545,660

NOTE.—German statistics before Jan. 1, 1906, include Gutta-percha, Balata, old (waste) rubber. British figures include old rubber. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

*General Commerce. †Special Commerce.



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Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

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Jenkins Bros., New York.

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[*See Mechanical Rubber Goods.*]

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N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-Pittsburgh.
Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Peerless Rubber Mfg. Co., New York.
Voorhees Rubber Mfg. Co., Jersey City.

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.

Pump Valves.

[*See Mechanical Rubber Goods.*]

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
Revere Rubber Co., Boston, Mass.

Rollers—Rubber Covered.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Sewing Machine Rubbers.

B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hardman Rubber Co., Belleville, N. J.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston.

Tiling.

Anchor Tile Co., Trenton, N. J.
Canadian Rubber Co. of Montreal, Ltd.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

See Mechanical Rubber Goods.]

American Hard Rubber Co., New York.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hardman Rubber Co., Belleville, N. J.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Valve Balls.—Continued.

New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York
Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.

Valves.

[See Mechanical Rubber Goods.]

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York-Chicago.

Vulcanite Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic, N. J.
New York Belting & Packing Co. Ltd., New York.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND STATIONERS' SUNDRIES

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
C. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Est. of Jos. Bachrach, Brooklyn, N. Y.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Imperial Rubber Co., Beach City, Ohio.
Mitzel Rubber Co., Akron, O.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass

Balls, Dolls and Toys.

New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York

Elastic Bands.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Mattson Rubber Co., New York,

Finger Cots.

Baumann Rubber Co., New Haven, Conn.
Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.

Gloves.—Continued.

National India Rubber Co., Bristol, R. I.
Pure Gum Specialty Co., Barberton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Hardman Rubber Co., Belleville, N. J.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Est. of Jos. Bacharach, Brooklyn, N. Y.
Baumann Rubber Co., New Haven, Conn.
Cleveland Rubber Co., Cleveland, Ohio
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
National India Rubber Co., Bristol, R. I.
Pure Gum Specialty Co., Barberton, O.
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

Seamless Rubber Goods.

H. A. Kaysan, Cassel, Germany.

Shower Bath Sprinklers.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Faultless Rubber Co., Ashland, Ohio.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hardman Rubber Co., Belleville, N. J.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
A. Schrader's Son, Inc., New York.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I.
Tyer Rubber Co. Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

MACKINTOSHED AND SURFACE GOODS

Air Goods (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

Air Goods (Rubber).—Continued.

New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.
National India Rubber Co., Bristol, R. I.

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, Ohio.
Davol Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J
Eureka Rubber Mfg. Co. of Trenton.
Gutta Percha & Rubber Mfg. Co., Toronto.
National India Rubber Co., Bristol, R. I.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son, Inc., New York.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Mackintoshes.

[See Clothing.]

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER FOOTWEAR

Boots and Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montreal
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Lycoming Rubber Co., Williamsport, Pa
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapercha Co., Hanover,
Grieb Rubber Co., Trenton, N. J.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Plymouth Rubber Co., Stoughton, Mass

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co. Boston.
Granby Rubber Co., Granby, Quebec.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
La Crosse Rubber Mills Co., La Crosse, Wis.
National India Rubber Co., Providence.
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

DENTAL AND STAMP RUBBER

Dental Gum.

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL

Electrical Supplies.

American Hard Rubber Co., New York.
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Rubber Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

National India Rubber Co., Providence

Splicing Compound.

Home Rubber Co., Trenton, N. J.

SPORTING GOODS

Foot Balls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York
National India Rubber Co., Bristol, R. I.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Sporting Goods.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Submarine Outfits.

Hodgman Rubber Co., New York.

MISCELLANEOUS

Boiler Specialist.

H. W. Jones, New York.

Cement (Rubber).

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Hadley Cement Co., Lynn, Mass.

Cement (Rubber).—Continued.

Manhattan Rubber Mfg. Co., New York
N. J. Car Spring & Rubber Co., Jersey City, N. J
New York Belting & Packing Co., N. Y.

Chemical Analyses.

Durand Woodman, Ph D., New York.
H. L. Terry, Manchester, England.

Chemical and Mechanical Engineer.

Charles E. Farrington, Boston.

Chemists.

Stephen P. Sharples, Boston, Mass.
Durand Woodman, Ph. D., New York.

Engraver.

P. C. Smith, Boston, Mass.

Rubber Journals.

Gummi-Zeitung, Dresden, Germany.

Rubber Patents.

Clarence E. Humphrey, Akron, O.

Rubber Planting.

Ohio Rubber Culture Co., Canton, Ohio.

Rubber Tree Seeds.

J. P. William & Bros., Heneratgoda, Ceylon.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY

Acid Tanks.

Birmingham Iron Foundry, Derby, Ct.

Band Cutting Machine.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Belt Folding Machines.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Slitters.
Cloth Dryers.
Gearing.
Shafting.
Wrapping Machines.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Stretchers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Hoggson & Pettis Mfg. Co., New Haven.

Boilers.

William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Braiders.

New England Butt Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Buckles.

The Weld Mfg. Co., Boston.

Cabling Machinery.

Alton Machine Co., New York.

Calenders.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Textile-Finishing Machinery Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Castings.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach Co., Ansonia, Ct.

Chucks (Lathe).

Hoggson & Pettis Mfg. Co., New Haven.

Churns.

American Tool & Machine Co., Boston.

Clutches.

Farrel Foundry & Mach. Co., Ansonia, Ct

Crackers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Devulcanizers.

Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, Ohio.
Birmingham Iron Foundry, Derby, Ct.
Edred W. Clark, Hartford, Ct.
William R. Thropp, Trenton, N. J.

Dies.

John J. Adams, Worcester, Mass.
Barbour Bros., Trenton, N. J.
T. J. Beaudry, Marlboro, Mass.
Brockton Die Co., Brockton, Mass.
J. W. Deewes, Philadelphia, Pa.

Dies.—Continued.

Hoggson & Pettis Mfg. Co., New Haven.
Independent Die Co, Brockton, Mass.
Joseph E. Knox & Co, Lynn, Mass.

Doubling Machines.

American Tool & Machine Co., Boston.

Drying Apparatus.

American Process Co., New York.

Drying Machines.

Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.

Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.

Alton Machine Co., New York.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton N. J.

Engraving Roll.

Hoggson & Pettis Mfg. Co., New Haven

Grinders and Mixers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct
William R. Thropp, Trenton, N. J.

Hangers.

Farrel Foundry & Mach. Co., Ansonia, Ct

Hose Machines.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct

Insulating Machinery.

Textile Machine Works, Reading, Pa.

Iron Castings.

Alton Machine Co., New York.

Lasts (Rubber Shoe).

Middlesex Last Co., Boston.

Lathes—Hard Rubber.

A. Adamson, Akron, Ohio.

Lathes—Jar Ring.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
William R. Thropp, Trenton, N. J.

Machinists' Tools.

Hoggson & Pettis Mfg. Co., New Haven.

Moulds.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
W. E. Arnold, Malden, Mass.
Barbour Bros., Trenton, N. J.
Birmingham Iron Foundry, Derby, Ct.
Hoggson & Pettis Mfg. Co., New Haven

Pillow Blocks.

Farrel Foundry & Mach. Co., Ansonia, Ct

Presses (for Rubber Work.)

A. Adamson, Akron, O.
Alton Machine Co., New York.
Bay State Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse, N. Y.
Edred W. Clark, Hartford, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct
William R Thropp, Trenton, N. J.

Pumps.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse.
Farrel Foundry & Mach. Co., Ansonia, Ct

Racks for Boot and Shoe Cars.

Hoggson & Pettis Mfg. Co., New Haven.

Reducing Valves.

Mason Regulator Co., Boston.

Rollers (Hand).

Hoggson & Pettis Mfg. Co., New Haven.

Rubber Covering Machines.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Rubber Growers' Utensils.

CEMENT CANS AND TANKS.

American Can Co., New York.

REPAIRING KIT BOXES.

American Can Co., New York.

Separators.

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Separators for Reclaimed Rubber.

American Process Co., New York.

Special Rubber Machinery.

Alton Machine Co., New York.
Wellman Sole Cutting Machine Co Medford, Mass.

Spreaders.

Alton Machine Co., New York.
American Tool & Machine Co., Boston
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Steam Traps and Specialties.

Jenkins Bros., New York.
Mason Regulator Co., Boston.
Osgood Sayen, Philadelphia, Pa.

Steel Stamps.

Hoggson & Pettis Mfg. Co., New Haven.

Stitchers (Hand).

Hoggson & Pettis Mfg. Co., New Haven

Strip Covering Machines.
Strip Cutters.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Tire Molds.

Bay State Machine Co., Erie, Pa.

Tubing Machines.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Bay State Machine Co., Erie, Pa.
Edred W. Clark, Hartford, Ct.
John Royle & Sons, Paterson, N. J
Textile Machine Works, Reading, Pa.

Vacuum Drying Chambers

Alton Machine Co., New York.
Joseph P. Devine Co., Buffalo, N. Y.

Varnishing Machines.

Birmingham Iron Foundry, Derby Ct.

Vulcanizers.

Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, Ohio.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R Thropp, Trenton, N. J.
John E. Thropp's Sons Co., Trenton, N. J.

Washers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Insulating Machines.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Wire Rope Machinery.

Alton Machine Co., New York.

SECOND-HAND MACHINERY.

Philip Broomfield, Boston, Mass.
W. C. Coleman Co., Rochelle Park, N. J
Philip McGrory, Trenton, N. J.
M. Norton & Co., Charlestown, Mass.

FACTORY SUPPLIES

Acid (Carbolic).

Barrett Mfg. Co., Philadelphia.

Antimony, Sulphurets of.

GOLDEN.

Actien-Ges. Georg Egestorff's Salzwerke, Linden, Germany.
Atlas Chemical Co., Newtonville, Mass.

GOLDEN AND CRIMSON.

Joseph Cantor, New York.
Geo. F. Lufbery, Jr., Elizabeth, N. J.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.

Balata.

George A. Alden & Co., Boston.

Benzol.

Barrett Mfg. Co., Philadelphia.
Samuel Cabot, Boston.

Black Hypo.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.

Boxes (Wood).

Henry H. Sheip & Co., Philadelphia.

Brass Fittings.

A. Schrader's Son, Inc., New York.

Carbon Bisulphide.

George W Speaight, New York.

Caustic Soda.

Acker Process Co., Niagara Falls, N. Y.

Chemicals.

Acker Process Co., Niagara Falls, N. Y
George W. Speiaght, New York.
S. P. Wetherill Co., Philadelphia, Pa.

Colors.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.
S. P. Wetherill Co., Philadelphia, Pa.

MACHINERY AND SUPPLIES FOR RUBBER MILLS—CONTINUED.

Crude Rubber.
George A. Alden & Co., Boston.
A. W. Brunn & Co., New York.
Hagemeyer & Brunn, New York.
Adolph Hirsch & Co., New York.
F. R. Miller & Co., New York.
Para Recovery Co., Bayonne, N. J.
Rubber Trading Co., New York-Boston.

Dermatine.
The Dermatine Co., London.

Ducks and Drills (Cotton).
J. H. Lane & Co., New York.

Gilsonite.
William H. Scheel, New York.

Graphite.
United States Graphite Co., Philadelphia.

Graphite Grease.
Jos. Dixon Crucible Co., Jersey City.

Guayule Rubber.
Continental Rubber Co.
Ed. Maurer, New York.

Gutta-Percha.
George A. Alden & Co., Boston.
Rubber Trading Co., New York-Boston

Hose Bands, Straps & Menders.
Boston Woven Hose & Rubber Co.
William Yerdon, Fort Plain, N. Y.

Hose Pipes, Nozzles & Couplings.
Boston Woven Hose & Rubber Co.
Eureka Fire Hose Co., New York.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.

Hydro-Carbon Products.
Geo. A. Alden & Co., Boston.
William H. Scheel, New York.

Infusorial Earth.
Stamford (Conn.) Rubber Supply Co.

Lampblack.
Samuel Cabot, Boston.

Lawn-Hose Supporters.
C. J. Bailey & Co., Boston.

Lead—Blue.

Lead—Sublimed White.
Picher Lead Co., Chicago, Ill.

Lithopone.
Gabriel & Schall, New York.

Naphtha.
Barrett Mfg. Co., Philadelphia.

Paris White and Whiting.
H. F. Taintor Mfg. Co., New York.

Recording Thermometers.
Bristol Co., New York.

Reclaimed Rubber.
Aladdin Rubber Co., Akron, Ohio.
Alkali Rubber Co., Akron, Ohio.
American Reclaimed Rubber Co., Rochelle Park, N. J.
F. H. Appleton & Son, Boston.
Bloomingdale (N. J.) Soft Rubber Co.
E. H. Clapp Rubber Co., Boston, Mass.
Danversport Rubber Co., Boston.
Derby Rubber Co., Derby, Conn.
Eastern Rubber Co., New York.
Trenton (N. J.) Rubber Reclaiming Works.
Manufactured Rubber Co.

Reclaimed Rubber.—Continued.
New Jersey Rubber Co., Lambertville, N. J.
Pequanoc Rubber Co., Butler, N. J.
Philadelphia Rubber Wks., Philadelphia.
Stockton Rubber Co., Stockton, N. J.
Jos. Stokes Rubber Co., Trenton, N. J.
S. & L. Rubber Co., Chester, Pa.
U. S. Rubber Reclaiming Wks., N. Y.
Westmoreland Rubber Mfg. Co., Grapeville, Pa.

AGENTS AND DEALERS
Goldberg & Rathman, Boston, Mass.
Philip McGrory, Trenton, N. J.
H. P. Moorhouse, Paris, France.
Rubber Trading Co., New York-Boston.
Wm. Somerville's Sons, Liverpool.

Scrap Rubber.
L. Albert & Son, Trenton, N. J.
Bers & Co., Philadelphia.
P. Broomfield & Co., Boston.
C. Clifford, Baltimore, Md.
Wm. H. Cummings & Sons, New York.
Goldberg & Rathman, Boston, Mass.
Theodore Hofeller & Co., Buffalo, N. Y.
A. W. Leslie & Co., Ltd., London, Eng.
B. Loewenthal & Co., New York and Chicago.
J. Loewenthal & Sons, Chicago.
Philip McGrory, Trenton, N. J.
Meyer Bros., Philadelphia, Pa.
Trenton (N. J.) Rubber Reclaiming Works.
M. Norton & Co., Charlestown, Mass.
San Giacomo Sons, Newark, N. J.
J. Schnurmann, London.
Schwab & Co., Philadelphia.
United States Waste Rubber Co., Brockton, Mass.

Scrap Rubber.—Continued.
M. J. Wolpert, Odessa, Russia.

Substitute.
Joseph Cantor, New York.
Geo. F. Lufbery, Jr., Elizabeth, N. J.
Massachusetts Chemical Co., Boston.
The Rubber Chemical Co., Birmingham, England.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.
C. M. Cubberly, Trenton, N. J.

Sulphur.
Battelle & Renwick, New York.
T. & S. C. White Co., New York.

Sulphur Chloride.
Acker Process Co., Niagara Falls, N. Y.
William H. Scheel, New York.
George W. Speaight, New York.
Stamford (Conn.) Rubber Supply Co.

Tire Fabrics.
J. H. Lane & Co., New York.

Tire Valves.
A. Schrader's Son, Inc., New York.

Valves for Air Goods.
A. Schrader's Son., Inc., New York.

Zinc Substitute.
Aluminum Flake Co., Akron, Ohio.

Zinc Sulphide.
Joseph Cantor, New York.
Typke & King, London, England

Zinc White.
New Jersey Zinc Co., New York.
Stamford (Conn.) Rubber Supply Co.

BUYERS' DIRECTORY
—FOR—
Rubber Tires and Accessories.

Auto Top Fabrics.
Chase & Co., L. C., Boston, Mass.
Hodgman Rubber Co., New York.
Mutty & Co., L. J., Boston, Mass.
National India Rubber Co., Bristol, R. I.

Cases, Tire.
Gilbert Mfg. Co., New Haven, Conn.

Covers, Tire.
Wiley & Son Co., Wm. H., Hartford, Conn.

Fabrics.
Chase & Co., L. C., Boston, Mass.
Lane & Co., J. H., New York.
Mutty & Co., L. J., Boston, Mass.
National India Rubber Co., Bristol, R. I.

Flanges and Rings.
The A. Dewes Co., New York.

Insulated Wires.
Clark Insulation Co., Boston, Mass.
National India Rubber Co., Bristol, R. I.

Flats, Automobile.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston, Mass.

Pumps, Tire.
Pacific Tucking & Mfg. Co., Brooklyn, N. Y.

Repair Stock.
Trenton Rubber Mfg. Co., Trenton, N. J.

Rims, Wheel.
Hartford Rubber Works Co., Hartford, Conn.
Goodrich Co., B. F., Akron, Ohio.
Goodyear Tire & Rubber Co., Akron, Ohio.

Tires.
Bailey & Co., C. J., Boston, Mass.
Canadian Rubber Co. of Montreal, Ltd.
Continental Caoutchouc Co., New York.
Consolidated Rubber Tire Co., New York—Akron, Ohio.
Diamond Rubber Co., Akron, Ohio.
Dunlop Tire & Rubber Goods Co., Toronto.
Electric Rubber Mfg. Co., Rutherford, N. J.
Empire Rubber Mfg. Co., Trenton, N. J.
Firestone Tire & Rubber Co., Akron, Ohio.
Fisk Rubber Co., Chicopee Falls, Mass
F. W. Skinner, Advance Tire Co., Valley Falls, R. I.
G. & J. Tire Co., Indianapolis, Ind.
Goodrich Co., B. F., Akron Ohio.
Gutta Percha & Rubber Mfg. Co, Toronto.
Harburg Tire Co, Harburg, Germany.
Harburg-Vienna India Rubber Co, Harburg, Germany.
Hartford Rubber Works Co., Hartford, Conn.
Healy Leather Tire Co., New York.
Indiana Rubber & Insulated Wire Co., Jonesboro, Ind.
International A. & V. Tire Co., Milltown, N. J.
Kasner, A. H., New York.
Kokomo Rubber Co., Kokomo, Ind.
Lake Shore Rubber Co., Erie, Pa.
Michelin Products Selling Co, New York.
Michelin Tire American Agency, Inc., New York.
Mitchell Punctureless Pneumatic Tire Co., Swampscott, Mass.
Morgan & Wright, Chicago, Ill.
Motz Clincher Tire & Rubber Co., Akron, Ohio.
North British Rubber Co., Ltd., Edinburgh, Scotland.
Pirelli & Co., Milan, Italy.
Plymouth Rubber Co., Stoughton, Mass
Republic Rubber Co., Youngstown, Ohio.
Sirdar Rubber Co., Ltd., London, England.
St. John Rubber Tire Co., Inc., New York.
Sweet Tire & Rubber Co., Batavia, N. Y.
Swinehart Clincher Tire & Rubber Co., Akron, Ohio.
Trenton Rubber Mfg, Co., Trenton, N. J.
United Berlin Frankfort India Rubber Co., Ltd., Berlin, Germany.
Universal Tire Co., N. Y.

AUTOMOBILE AND CARRIAGE.
Boston Belting Co., Boston-New York.
Eureka Rubber Mfg. Co., Trenton, N. J.
Revere Rubber Co., Boston-New York.

Tire Applying Machines.
Nelson & Le Moon, Chicago, Ill.

Tire Cases.
Gilbert Mfg. Co., New Haven, Conn.

Tire Covers.
Wiley & Son Co., Wm. H., Hartford, Conn.

Tire Fabrics.
Lane & Co., J. H., New York.

Tire Pumps.
Pacific Tucking & Mfg. Co., Brooklyn, N. Y.

Tire Repairing.
Boston Vulcanizing Co., Boston, Mass.
Foote Rubber Co., D. E., Cleveland, Ohio.
Republic Rubber Tire & Shoe Co., New York.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Treads.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
Leather Tire Goods Co., Newton Upper Falls, Mass.
Manhattan Rubber Mfg. Co., New York.
Revere Rubber Co., Boston, Mass.

Valves, Tire.
Schrader's Sons, Inc., A., New York.

Vulcanizer, Tire.
Auto Tire Vulcanizing Co., Lowell, Mass.

Wires, Insulated.
Clark Insulation Co., Boston, Mass.
National India Rubber Co., Bristol, R. I.